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REPORT OF THE INTERGOVERNMENTAL COMMITTEE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT*

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I. INTRODUCTION

1. The General Assembly, in its resolution 34/218 of 19 November 1979, entitled "United Nations Conference on Science and Technology for Development", decided to establish an Intergovernmental Committee on Science and Technology for Development. The Assembly also decided that the Committee should be open to the participation of all States as full members and that the representation of Member States in the Committee should be at a high level.

2. The General Assembly also decided that the Committee should submit its reports and recommendations to the Assembly through the Economic and Social Council, which may transmit to the Assembly such comments on the reports as it deems necessary, particularly with regard to coordination.

II. RESOLUTION ADOPTED BY THE INTERGOVERNMENTAL COMMITTEE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT AT ITS ELEVENTH SESSION

3. At its eleventh session, the Intergovernmental Committee adopted the following resolution (resolution 1 (XI)):

Resolution

1 (XI)

The Intergovernmental Committee on Science and Technology for Development recommends to the General Assembly the adoption of the following resolution:

Science and technology for development in the 1990s

A

Environmentally sound technology

The Intergovernmental Committee on Science and Technology for Development,

Recalling General Assembly resolutions 44/14 A to E of 26 October 1989, 44/228 of 22 December 1989 and S-18/3 of 1 May 1990,

1. Takes note with appreciation of the report of the Secretary-General on ways and means of ensuring the participation of developing countries in international cooperation for research on and development of environmentally sound technologies, 1/ and the rapid and effective transfer of such technologies to the developing countries, as well as the report of the Advisory Committee on Science and Technology for Development; 2/

2. Requests the Secretary-General to make those reports available to the Secretary-General of the United Nations Conference on Environment and Development before the third session of the Preparatory Committee for the Conference for consideration, together with the views expressed by delegations on the subject during the eleventh session of the Intergovernmental Committee;

3. Requests the Centre for Science and Technology for Development to prepare, in cooperation with the Department of International Economic and Social Affairs, the Department of Technical Cooperation for Development and other relevant United Nations bodies, a comprehensive study on the utilization and marketing of energy technologies, drawing upon the studies conducted by other organizations and bodies of the United Nations system, and based on legislative, institutional and other specific experiences of selected

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1/ A/CN.11/1991/2.

2/ A/CN.11/1991/6.

countries and focusing on policy issues and options for an effective transfer and application of environmentally sound technologies, and to report to the Intergovernmental Committee thereon at its twelfth session;

4. Considers it important that ways of improving the dissemination of information on environmentally sound technologies, including the establishment of a network of national and international research centres on environmentally sound technologies, based primarily on existing regional research, development and demonstration centres, and data banks, linking the regional centres to national institutions and enterprises, should be examined by the Preparatory Committee for the United Nations Conference on Environment and Development as a modality for access to environmentally sound technology;

5. Requests the Secretary-General of the United Nations to make available to the Secretary-General of the Conference the technical resources of the Advisory Committee on Science and Technology for Development in order to contribute to the preparatory work of the Conference on the transfer of environmentally sound technology to all countries, in particular to developing countries;

6. Requests the Chairman of the Advisory Committee on Science and Technology for Development to transmit part A of the present resolution to the Chairman of the Preparatory Committee for the Conference as the substantive contribution of the Intergovernmental Committee to the work of the Preparatory Committee.

B

Activities of the United Nations system on science and technology for development

The Intergovernmental Committee on Science and Technology for Development,

Recalling General Assembly resolutions 34/218 of 19 December 1979 and 44/14 A to E of 26 October 1989,

Recalling also its resolution 45/196 of 21 December 1990 on industrial development cooperation and the diversification and modernization of productive activities in developing countries,

1. Requests the Secretary-General, drawing upon the work of the relevant organs, organizations and bodies of the United Nations system to present a report to the Intergovernmental Committee at its twelfth session on the following theme, which will be the substantive theme at that session: "The contribution of technologies, including new and emerging ones, for the industrialization of developing countries and for the strengthening of regional and global integration processes, including proposals on ways and means of transferring such technologies and for their incorporation in the productive sector of those countries";

2. Requests the Secretary-General of the United Nations to submit a report to the Intergovernmental Committee at its twelfth session in 1993 on ways and means of improving the quality of global coordination and cooperation in the area of science and technology for development, as well as system-wide coordination within the United Nations system;

3. Requests the Executive Director of the Centre for Science and Technology for Development, in cooperation with the relevant organs, organizations and bodies of the United Nations system, to advise all countries, in particular the developing countries, at their request, in their efforts to promote the development of small and medium-sized enterprises in environmental impact assessment, research on and development of environmentally sound technologies, in both the public and private sector;

4. Urges the international community and the United Nations system, particularly the Centre for Science and Technology for Development, to take steps towards the full implementation of the Paris Declaration, adopted by the Second United Nations Conference on the Least Developed Countries, 3/ and the Programme of Action for the Least Developed Countries for the 1990s 3/ in the field of science and technology;

5. Notes the efforts of the Secretary-General of the United Nations Conference on Trade and Development to hold consultations on a code of conduct for the transfer of technology, and encourages Member States to participate in these consultations with a view to facilitating an agreement thereon.

C

Endogenous capacity-building

The Intergovernmental Committee on Science and Technology for Development

1. Urges the Centre for Science and Technology for Development to continue and enhance activities to support the efforts of developing countries to build and strengthen their endogenous capacities in science and technology, and in so doing also to pursue actively the involvement of the private sector in endogenous capacity-building projects;

2. Requests the Centre to support and participate in programmes of research and development of technology in the least developed countries with the aim of developing endogenous capacities and strengthening national scientific and technological infrastructures, and to assist in the formulation of appropriate policies to facilitate the transfer of technology;

3. Requests the Advisory Committee on Science and Technology for Development to continue its work to develop operational criteria to facilitate the design and assessment of programmes and activities to strengthen the endogenous scientific and technological capabilities of developing countries;

4. Requests the Secretary-General, in cooperation with the organs, organizations and bodies of the United Nations system, to submit to the Intergovernmental Committee, at its twelfth session, an analytical report on how the United Nations system can more actively enhance the impact of its activities related to the process of creating and strengthening endogenous capacity-building in science and technology in developing countries;

3/ A/CONF.147/Misc.9.

5. Requests the Centre for Science and Technology for Development, in cooperation with the appropriate organs, organizations and bodies of the United Nations system and appropriate organizations in developing countries, through its advanced technology assessment network and making full use of its endogenous capacity-building pilot studies, to organize workshops and other relevant activities in developing countries to explore both the methodologies for and the organization of technology monitoring, assessment and forecasting most appropriate to the needs and resources of the countries concerned;

D

Financing science and technology for development

The Intergovernmental Committee on Science and Technology for Development

1. Recommends that:

(a) Countries should increase efforts to support the process of endogenous capacity-building in science and technology, taking into account the Vienna Programme of Action on Science and Technology for Development 4/ and its basic goals;

(b) At the global level, a more diversified, innovative and flexible approach be sought to finance endogenous capacity-building in science and technology in order to enhance a broad coalition of resources drawn from domestic, bilateral and multilateral sources;

2. Takes note of the important work undertaken by the United Nations Fund for Science and Technology for Development and its status as an identifiable entity within the United Nations Development Programme under the policy guidance of the Intergovernmental Committee and in accordance with the priorities agreed upon by it;

3. Notes the concept and mode of operation outlined in the report of the Secretary-General as regards organizing a more effective coalition of resources, 5/ and requests the Secretary-General to submit to the Intergovernmental Committee, at its twelfth session, proposals for action in this respect, prepared in close cooperation with the United Nations Fund for Science and Technology for Development in consultation with the donor community, including the regional development banks and organizations of the United Nations system, especially the World Bank and the United Nations Development Programme.

4/ Report of the United Nations Conference on Science and Technology for Development, Vienna, 20-31 August 1979 (United Nations publication, Sales No. E.79.I.21 and Corr.1 and 2), chap. VII.

5/ See A/CN.11/1991/3.

III. ORGANIZATIONAL MATTERS

A. Opening and duration of the session

4. The eleventh session of the Intergovernmental Committee on Science and Technology for Development was held at United Nations Headquarters from 22 April to 3 May 1991.

5. The Committee held 11 meetings (104th to 114th), as well as a number of informal meetings.

B. Membership and attendance

6. In accordance with the provisions of General Assembly resolution 34/218, the Committee is open to the participation of all States as full members. Representatives of the following States attended the eleventh session of the Committee:

Algeria, Antigua and Barbuda, Argentina, Bahamas, Bangladesh, Barbados, Belgium, Benin, Bolivia, Brazil, Bulgaria, Burkina Faso, Burundi, Byelorussian Soviet Socialist Republic, Cape Verde, China, Colombia, Congo, Costa Rica, Côte d'Ivoire, Cuba, Cyprus, Czechoslovakia, Ecuador, Egypt, Fiji, France, Gabon, Germany, Ghana, Greece, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Lesotho, Madagascar, Malawi, Malaysia, Mali, Mexico, Mongolia, Morocco, Nepal, Netherlands, Nicaragua, Nigeria, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Singapore, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Thailand, Togo, Tunisia, Turkey, Uganda, Ukrainian Soviet Socialist Republic, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America, Uruguay, Vanuatu, Venezuela, Viet Nam, Yugoslavia, Zambia, Zimbabwe.

7. The following United Nations organizations and bodies were represented:

Department of International Economic and Social Affairs

United Nations Conference on Environment and Development

United Nations Conference on Trade and Development

United Nations Environment Programme

United Nations Population Fund

United Nations University

Economic Commission for Africa

Economic and Social Commission for Asia and the Pacific

United Nations Fund for Science and Technology for Development

World Food Council

8. The following specialized agencies were represented:

International Labour Organisation

Food and Agriculture Organization of the United Nations

United Nations Educational, Scientific and Cultural Organization

World Health Organization

World Bank

United Nations Industrial Development Organization

9. The following intergovernmental organization was represented:

Asian-African Legal Consultative Committee

10. The following non-governmental organizations were represented:

Bangladesh Centre for Advanced Studies

European Council for Social Research on Latin America

International Association of Impact Assessment

International Chamber of Commerce

International Institute for Applied Systems Analysis

International Society of Technology Assessment in Health Care

Third World Academy of Sciences

Union of International Technical Associations

C. Election of officers

11. At its 104th meeting, on 22 April, the Committee elected by acclamation the following officers for its eleventh session:

Chairman: Ladislav KOVAC (Czecholovakia)

Vice-Chairmen: Dulce Arnao de UZCATEGUI (Venezuela)
Ahmed DJOGHLAF (Algeria)

Rapporteur: Mahbub KABIR (Bangladesh)

12. At its 111th meeting, on 29 April, the Committee elected by acclamation Mr. George Kint (Belgium) as Vice-Chairman.

D. Documentation

13. The Committee had before it the following documents:

(a) Provisional agenda (A/CN.11/1991/1 and Corr.1);

(b) Report of the Secretary-General on ways and means of ensuring the participation of developing countries in international cooperation for research on and development of environmentally sound technologies, and the rapid and effective transfer of such technologies to the developing countries (A/CN.11/1991/2);

(c) Report of the Secretary-General on financing science and technology for development (A/CN.11/1991/3);

(d) Report of the Secretary-General on the assessment of the impact of the activities of the United Nations system in promoting endogenous capacity-building in developing countries in the field of science and technology (A/CN.11/1991/4);

(e) Report of the Director-General for Development and International Economic Cooperation on new developments and trends in the programmes and activities of the United Nations system in science and technology for development (A/CN.11/1991/5);

(f) Report of the Advisory Committee on Science and Technology for Development on its eleventh session (A/CN.11/1991/6);

(g) Note by the Secretary-General on the registry of national focal points for science and technology for development (A/CN.11/1991/7 and Corr.1);

(h) Note by the Secretariat on the procedure for the appointment of members of the Advisory Committee on Science and Technology for Development (A/CN.11/1991/8);

(i) Report of the Secretary-General on the activities of the Centre for Science and Technology for Development (A/CN.11/1991/9);

(j) Note by the Secretary-General on the interim appointment of a member of the Advisory Committee on Science and Technology for Development (A/CN.11/1991/10);

(k) Note by the Secretary-General on the summary of correspondence received from organs, organizations and bodies of the United Nations system (A/CN.11/1991/CRP.1);

(l) Note by the Secretary-General on planning and managing science and technology policy (A/CN.11/1991/CRP.2);

(m) Note by the Secretariat on the proposed programme of work of the Centre for Science and Technology for Development for the biennium 1992-1993 (A/CN.11/1991/CRP.3);

(n) Note by the Secretariat on the state of preparation of documentation for the session (A/CN.11/1991/L.1);

(o) Note by the Secretariat on the organization of the work of the session (A/CN.11/1991/L.2).

E. Adoption of the agenda

14. At its 104th meeting, on 22 April, the Committee adopted the following agenda for the session:

1. Election of officers.

2. Adoption of the agenda and other organizational matters.

3. Substantive theme: ways and means of ensuring the participation of developing countries in international cooperation for research on and development of environmentally sound technologies, and the rapid and effective transfer of such technologies to the developing countries.

4. Financing science and technology for development.

5. Assessment of the impact of the activities of the United Nations system in promoting endogenous capacity-building in developing countries in the field of science and technology.

6. Activities of the United Nations system in science and technology for development, including those of the Centre for Science and Technology for Development, and the Advisory Committee on Science and Technology for Development.

7. Programme questions.

8. Election of the Chairman and nomination of other officers for the twelfth session of the Committee, and appointment of members of the Advisory Committee on Science and Technology for Development.

9. Provisional agenda and organization of work for the twelfth session of the Committee.

10. Adoption of the report of the Committee.

F. Adoption of the report

15. At its 114th meeting, on 3 May, the Committee adopted its draft report (A/CN.11/1991/L.3 and Adds.1-5) and authorized the Rapporteur to finalize it in consultation with other members of the Bureau.

IV. WORK OF THE COMMITTEE AT ITS ELEVENTH SESSION

A. Introductory and general statements

16. The Chairman of the eleventh session of the Intergovernmental Committee on Science and Technology for Development stated that the Committee was meeting at the beginning of the Fourth United Nations Development Decade. He recalled that the adoption of the Vienna Programme of Action on Science and Technology for Development by the General Assembly also coincided with the Third Development Decade and formed the basis of most of the proposals put forward for that decade. Since the expectations of the Vienna Programme of Action had not been met, it would be necessary to analyse the reasons for the failure of the practical measures that had been taken to accomplish the tasks of the Programme and to formulate new notions and hypotheses from a scientific point of view.

17. Knowledge as a result of expanding scientific complexity should be continuously integrated into thinking on global issues, and the operational value of such concepts as "environmentally sound technology" and "endogenous capacity-building" should be subjected to thorough scrutiny. Science should be involved in reconsidering organizational and institutional arrangements that would transcend the autonomy and sovereignty of nations. He suggested that the industrialized countries should see the situation in the developing world from a perception of enlightened self-interest rather than one of sympathy and compassion.

18. The Chairman stated that the problem of population growth could be the main focal point of science in the 1990s, thereby enabling improvements to be made in the quality and dignity of human life in third world countries.

19. He concluded that more emphasis should be placed on the so-called "soft" sciences, namely, human and social sciences in development, in order to assist in a reformulation of notions and goals for developing countries, and proposed that such aspects could constitute the substantive theme of the next session of the Committee.

20. The Director-General for Development and International Economic Cooperation stated that in 1989 the General Assembly adopted on the recommendation of the Committee its resolution 44/14, which reaffirmed the validity of the Vienna Programme of Action as well as its fundamental objectives and also took important decisions concerning multilateral cooperation for the strengthening of endogenous capacities. The Assembly, reflecting the concerns of the Committee, also declared its preoccupation concerning the implementation of the Vienna Programme, whose results had disappointed developing and industrialized countries alike.

21. The interest of Member States in the field of science and technology was reiterated by the General Assembly at its special session on international economic cooperation, as well as in the adoption of the strategy for the 1990s. As regards the least developing countries, the Paris Conference had recommended action to reinforce their scientific and technological capacities. Unfortunately, in spite of the efforts of the international community and some relative successes, the pessimistic conclusions of the end

of 1989 were still an actuality. The qualitative and quantitative gap in science and technology continued to grow between developed and the developing world. At the same time, the economic gap between the North and the South had become still wider.

22. While science alone could not be the solution to development, it would be in science, especially political and economic sciences, that one could find solutions to the problems of development, including viable conditions for the implantation of science and technology as agents in the transformation of the South.

23. He stated further that the substantial theme chosen by the Committee at its current session, the equitable access by developing countries to environmentally sound technologies, showed after analysis that the solution of global development problems would depend on science and technology and in that case on the transfer to the South on favourable conditions of new environmentally sound technologies.

24. Science and technology mutually reinforced each other owing to the fact that scientific research made use of technological advances such as informatics and robotics. Conversely, the breakthroughs issuing from scientific research, which constituted the basis of technology innovation, were very rapidly put into use by technological research and by industrialized production. The net result of so much interaction was an unprecedented acceleration of progress in science and technology on the whole. That might explain dramatically how developing countries were lagging behind in science and technology.

25. The concept of science and technology capacities implied the development of human resources, especially through education. That question, which was addressed in the Committee's end of decade review in 1989, should be dealt with in more depth by it. In pursuing the request addressed to him by the General Assembly, he had submitted to the Committee a report on new developments and trends in the United Nations system. The report noted efforts between a creation of a generic and technology capacity that would serve to reinforce capacities in specific sectors, including health and food. The report also noted a consensus on the importance of strategic planning and technological prospective studies both in the Secretariat of the United Nations and in programmes of cooperation with Member States.

26. The Director-General also made reference to the report of the Secretary-General on the activities of the organizations in 1990 and referred to what he called the utilization of science and technology for military ends. He underlined the point made in the report of the Secretary-General that the necessary unrestricted access of developing countries to new technologies should not result further in a destabilizing qualitative arms race and that the international community should establish equitable safeguards in that respect that could be acceptable by everyone.

B. Substantive theme: ways and means of ensuring the participation of developing countries in international cooperation for research on and development of environmentally sound technologies, and the rapid and effective transfer of such technologies to the developing countries

(Agenda item 3)

27. The Officer-in-Charge of the Centre for Science and Technology for Development introduced the report of the Secretary-General on the ways and means of ensuring the participation of developing countries in international cooperation for research on and development of environmentally sound technologies, and the rapid and effective transfer of such technologies to the developing countries (A/CN.11/1991/2) and stated that science and technology, which had become more important than ever, were indispensable components of the response to the wide range of environmental challenges. The United Nations had a continuing role to play in mobilizing the potential of science and technology for development. It was not an easy task, and perhaps for that reason the Organization had often been criticized for the manner in which it had addressed the problem.

28. He emphasized that the transfer of environmentally sound technologies to developing countries on preferential terms and the building of capacities for the effective application of such technologies was vital for achieving sustainable development in those countries. It was necessary to identify creative mechanisms and operational methods to accelerate such transfer and enhance the capacities to manage environmentally sound technologies in developing countries, including financing.

29. He also introduced a background document entitled "Environmentally sound technology assessment (ESTA)".

30. The representative of Ghana, speaking on behalf of the Group of 77, stated that the world was in the last decade of a century that had seen the most technological development in history. One would have thought that the achievements in technological innovations and development that had taken place in the developed North would have been brought within easy reach of the developing countries. It was tragically ironic that the developing countries had not been able to benefit from that development. The result had been a widening gap between the developed and most of the developing countries. The Group of 77 attached enormous importance to the subject of science and technology for development and that was reflected in its national social and economic development planning.

31. In an era in which the issues of accessibility to and affordability of environmentally sound technologies had become very important globally, it was important to make a concerted effort to ease the burdens of developing countries in those areas in order to ensure human survival. He lamented the fact that serious efforts made by the Group of 77 within the United Nations and other international forums had not been rewarded by significant progress in creating conditions for a more rapid development of science and technology in developing countries. The classic concept of technology transfer, predicated on the use of multilateral agencies and bilateral donors, had not

been able to fulfil the task. The Group of 77, however, wished to emphasize that international support was still essential to the efforts of the developing countries to strengthen the processes of their scientific and technological development.

32. The Group of 77 reaffirmed the validity of the Vienna Programme of Action on Science and Technology for Development 6/ and the relevance of the three basic goals for the development of developing countries, namely, to strengthen the endogenous capacity of developing countries, restructure international science and technology relations and strengthen the role of the United Nations system. In addition, the Group of 77 would like to see international scientific and technological cooperation that inspired trust and confidence, full access to scientific and technological knowledge, unimpeded transfer of technology on terms that were non-exploitative, a harmonized United Nations policy on science and technology and the setting up of financial mechanisms to provide the necessary resources to ensure meaningful implementation of the Vienna Programme of Action. He reiterated the call made at the Special Ministerial Meeting of the Group of 77 in June 1989 for the need to continue to strengthen and expand the human resource base of developing countries. The Group of 77 appreciated the work of the Intergovernmental Committee, which it saw as an important forum for the growth and development of science and technology. He also called for special attention to be paid to the needs of the least developed countries.

33. A number of representatives commended the Intergovernmental Committee for its foresight in the selection of the substantive theme since it would serve as a significant contribution to the preparatory process of the 1992 United Nations Conference on Environment and Development. Two of the most important and delicate topics to be discussed during the Conference would be the transfer of environmentally sound technologies and financial resources to developing countries. The reports of the Secretary-General on those subjects were considered comprehensive and highly analytical by many representatives; they not only elaborated the various difficulties and problems confronting the developing countries in their efforts to participate in international cooperation on research and development of environmentally sound technologies and in the rapid and effective transfer of such technologies to developing countries but also envisaged some preliminary solutions. The reports, in conjunction with the background document on environmentally sound technology assessment, would serve as a significant contribution to the preparation of the 1992 United Nations Conference on Environment and Development. The representatives of two developing countries encouraged the Centre for Science and Technology for Development to continue its work in the area of the assessment of environmentally sound technologies as an important contribution to the implementation of the Vienna Programme of Action.

34. Many representatives endorsed the observations made in the report of the Secretary-General on the substantive theme that the global dimension of environmental and development challenge called for concerted action on a wide

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6/ See Report of the United Nations Conference on Science and Technology for Development, Vienna, 20-31 August 1979 (United Nations publication, Sales No. E.79.I.21 and corrigenda), chap. VII.

front. It required an increased solidarity among all nations and the political will of all countries in order to face the complex task that lay ahead for the community of States. There was no doubt that the key issue of the technological development of developing countries was central to the world community's endeavour to meet successfully the challenge of environmentally sound and sustainable development at national, regional and global levels. The representative of a developing country stressed the need for a clean environment as a guiding principle that should not be used to infringe on the sovereign rights of States or impose new conditions in aid and trade.

35. Many representatives from developing countries emphasized the need to look specifically at developing countries' environmental problems. Those concerns were inextricably linked to the larger question of global environmental impoverishment but had not received the kind of serious efforts that were needed to ensure the cooperation of developing countries in international attempts to achieve global sustainable development. The representative of a developing country recommended that global environmental questions should not overshadow the gravity of local environmental problems, such as desertification and drought. Both global and local environmental issues should be kept in mind when addressing the question of access and transfer of environmentally sound technologies. The representative of a developing country argued that the effects of environmental degradation had no boundaries and that it was the common responsibility of humanity to use all the knowledge and technologies available to halt the current process of environmental destruction. He stressed that in a matter of such urgency it would be immoral to withhold technologies capable of reversing current trends for either political, ideological or proprietary reasons.

36. Several representatives from developed and developing countries expressed the urgent need for international cooperation in support of the national priorities and plans of developing countries to strengthen their capacities to develop and effectively apply environmentally sound technologies. In that regard, the representatives emphasized that the building of endogenous capacity in developed countries was just as significant as making environmentally sound technologies available on the market.

37. The representative of an island developing country drew the attention of the Intergovernmental Committee to the specific situation of small island developing countries with regard to the need to build up a critical mass in science and technology to respond effectively to their national needs and international obligations. Attempting to build on a resource-poor base and lacking the established scientific and technological infrastructures, such as universities and research and development institutions that had been identified as essential prerequisites for endogenous capacity-building in science and technology, placed the small island developing countries at risk of exclusion from the so-called "age of information technology". A programme of action tailored specifically to the unique requirements of small island developing countries was needed that would combine an innovative approach focused on participatory, people-oriented, sustainable development targeted to making science and technology a dynamic and integral part of their development processes.

38. The representative of a developed country stated that effective technology transfer involved more than simply moving products and industrial

processes. As the documentation on the substantive theme pointed out, it required the transfer of knowledge needed to create and manage processes and products. In order to build up the necessary knowledge, appropriate conditions must exist in the receiving country. The transfer of technology had to be seen from a longer-term and wider perspective, where investments in capacity-building and human resource development were central elements, particularly with regard to the need to develop, adapt and apply technologies tailored to the specific conditions and requirements of developing countries. There must be sufficient means available to finance effective demand; there must be environmental policies in place and research and education systems capable of receiving, adapting and developing applications of new knowledge. He stated that while market mechanisms could provide significant technology transfers, they were inadequate in fully satisfying demand and equity objectives and might not be effective in some countries. Thus, the role of the public sector was essential.

39. The representative of a developing country saw an effective way to circumvent the difficulties faced by developing countries in gaining access to proprietary technologies through public financing of the costs of such transfer or through the establishment of financial mechanisms under public control. Owing to the lack of resources by developing countries, such mechanisms would necessarily be of international scope, either bilateral or multilateral. Those efforts should be complemented by market mechanisms.

40. Many representatives pointed out that one of the major obstacles to the transfer of environmentally sound technologies had been their high cost coupled with the financial weakness of developing countries. While there was no absolute scarcity of resources, some argued, developed countries had not shown the political will to redirect available resources to promote development and to preserve the environment in developing countries. In that context, the representative of a developing country stated that developed countries should transfer environmentally sound technologies to developing countries on concessional and favourable terms to compensate for the economic losses on the part of developing countries as a result of environmental protection measures that would need to be put in place. They encouraged the establishment of special funds with new and additional resources to finance the transfer of environmentally sound technologies. It was also suggested that funding arrangements established under the Montreal Protocol could serve as a guide for the establishment of a funding mechanism for that purpose.

41. Many representatives from developing and developed countries agreed that to facilitate technology transfer to developing countries, it was necessary to define mechanisms aimed at increasing investments of both the private and public sectors by improving access to markets, developing research and development activities, facilitating access to patents and building up endogenous capacity in the area of science and technology. Those mechanisms should combine different elements, such as internal policies, innovative forms of partnerships between enterprises of developing and developed countries, enhancement of the scientific and technological cooperation between Governments and a more effective role by international agencies and non-governmental organizations.

42. Proposals were also made with regard to environmental protection measures. The representative of a developed country proposed the creation of

disincentives in the case of the transfer of outdated and pollution-generating technologies. In that connection, he stated that consideration should be given to the disclosure practices of private enterprises with regard to environmental impact and risk assessment related to particular technologies.

43. The representative of a developed country supported the view expressed in the report of the Secretary-General that national patent systems significantly affected the transfer and application of environmentally sound technologies. He stressed the need, however, for providing appropriate protection for intellectual property rights and emphasized that real technology transfer occurred as the result of close entrepreneurial cooperation. His Government, he stated, had committed approximately $US 2.2 billion in bilateral and multilateral assistance in the field for the period 1989-1991. He also informed the Committee about the formation of the Keidanren Global Environment Charter, a federation of economic organizations in Japan. The Charter provided guidelines in the area of environmental protection to be applied by Japanese companies and their subsidiaries. The representative of a developing country expressed the need for a regime concerning the protection of intellectual property that would legitimize international diffusion of environmentally sound technologies. A number of representatives gave specific attention to the role of the private and public sectors, especially with regard to their responsibility and potential to take action to improve the transfer of technologies to developing countries. The representative of a developing country underlined the need to take steps to develop technologies in the public domain through subsidies by developed countries, differential pricing policies by commercial enterprises and by limiting the life of environmental patents while providing a time waiver to developing countries so that their obligations under relevant international agreements would come into effect only after the life of the patents.

44. Many representatives referred to the importance of having access to information on environmentally sound technologies and the capacity to make effective use of such information. In that context, they pointed out that the lack of updated information on available environmentally sound technologies clearly hampered the dissemination of those technologies which were readily available. Several representatives supported the need for establishing an international database that would provide information not only on environmentally sound technologies but also on the world's distribution of technologies that were environmentally damaging. The database should take into account the implications of intellectual property rights.

45. Several representatives stated that developing countries had been unable to participate in research and development projects on environmentally sound technologies because they had first to deal with priorities covering the basic needs of their citizens. Many representatives stressed the importance of promoting partnerships in research on and development of environmentally sound technologies between developed and developing countries that were geared to development rather than solely to market strategies. They fully endorsed the observations made in the report regarding that issue, particularly with the view that multilateral cooperation had the advantage of bringing weaker and poorer partners in contact with the international scientific and technological community.

46. Many representatives pointed to the important suggestions contained in

the report regarding the establishment of a collaborative network of international research centres on environmentally sound technologies. Such a network should be based primarily on existing regional research, development and demonstration centres, which must be strengthened. Those regional centres should be linked to national institutions.

47. In the context of regional cooperation in research and development, the representative of a Latin American country informed the Intergovernmental Committee about an initiative known as the Bolivar programme, aimed at a regional strategy of technological innovation to foster the integration and industrial competitiveness of Latin American and Caribbean countries in an environmental context. Such a programme would promote scientific, technological and industrial cooperation among business enterprises and research centres of the region with the objective of increasing the productivity and competitiveness of industries and national economies.

48. The representative of the Netherlands, speaking on behalf of the European Community and its member States, thanked the Centre for Science and Technology for Development for its comprehensive report on the substantive theme. He emphasized the importance of the "think globally and act locally" approach, which had, so far, perhaps been more relevant for the developed part of the world, including Eastern Europe. Technology applications could have not only a minimum global adverse environmental effect but also even a beneficial effect on the global environment. Attention should also be given to promoting the use of technologies aimed at protecting the local environment.

49. Commenting further on the report of the Secretary-General, he noted that it disregarded any possibility of tapping internal financial resources. However, not all of the developing countries were facing such a situation, since a reordering of budget priorities in some of those countries could achieve improvements in their financial situations. The European Community and its member States fully subscribed to the need to mobilize additional financing support from the international community for that purpose.

50. He also stated that regulations on the export of environmentally damaging technologies must avoid a system of double standards, with different criteria used for the domestic application on the one side and the exportation of such technologies on the other. The responsibility of the international business community and recipient countries concerning such regulations had been emphasized by the World Industrial Conference on Environmental Management and by the Business Council for Sustainable Development. He raised doubts with regard to the usefulness of establishing yet another data bank, as had been proposed by representatives of other countries, given the existing databases operated by the United Nations Environment Programme (UNEP). He also raised the question of the extent to which international property rights could be considered a barrier to technology transfer, as stated in the report.

51. With regard to the substantive theme for the twelfth session of the Intergovernmental Committee in 1993, three proposals were made during the debate, namely, "Ways and means for implementing the decisions of the United Nations Conference on Environment and Development in the field of science and technology", "Science and technology for the integration and industrial competitiveness of the developing regions" and "Technology assessment in conversion of military technology for developmental purposes".

52. The representative of the United Nations Educational, Scientific and Cultural Organization (UNESCO) emphasized the importance of access to new knowledge and added that owners of new technologies often dictated the rules of the game. For science to be universal, the international community should propose solutions that would satisfy all countries. Additionally, he underlined the need to strengthen networking schemes in the regions and promote centres of excellence in South-South and North-South cooperation, to promote basic research in various ecologically related fields and to develop national higher education and training systems in science and technology.

53. The representative of the International Labour Organisation (ILO) noted that the understanding of the relationships between development and environment remained in a state of infancy; policy experiences were limited and the empirical evidence was being confined largely to the countries of the Organisation for Economic Cooperation and Development (OECD). He proposed that if the use of natural resources was to be sustained in the long run, preference should be given to those policy measures which relied on market incentives. He raised the question of the kind of policies needed to prevent adverse employment effects due to environmental degradation, such as involuntary migration through soil degradation and erosion, deforestation and desertification.

54. In his statement, the representative of the Economic Commission for Africa (ECA) referred to the serious social and economic problems facing the African region, which affected the incorporation of the issue of environmental protection into development policies. The major concern of the African countries at the moment was to find ways and means to survive using whatever technology they could lay their hands on and which they could afford. He stressed the need to strengthen the local infrastructure, including the research and development sector, in order to improve the possibilities for technology application and to avoid a "brain drain". He emphasized that research and development cooperation in the African region had to make use of existing mechanisms and institutions for such cooperation. He outlined basic features for the participation of African countries in international cooperation for research on and development of environmentally sound technologies and the effective transfer of such technologies to African countries.

55. The representative of the Economic and Social Commission for Asia and the Pacific (ESCAP) said that he supported the thrust of the views in the report of the Secretary-General. They served as a practical base for future development. In the ESCAP region, the biophysical environment continued to deteriorate while the political situation had improved. The population was increasing and the majority of the people continued to depend directly on the environment for their livelihood. Accordingly, the rapid depletion of the environment was a source of serious concern.

56. The economic growth of the region had exceeded that of any of the other developing regions of the world. A significant portion of that growth was due to rapid industrialization. That growth had produced a number of environmental problems, including a higher rate of air pollution and a reduced capacity to deal with it. If future generations were to enjoy a better quality of life, it was necessary to institute effective methods to conserve the environment and reverse the degradation that had already occurred while pursuing economic growth and development.

57. For many developing countries, particularly the least developed and island economies, appropriate domestic policy and institutional infrastructure, as well as skilled manpower relevant technologies and large financial resources were required to deal with both local and global environmental problems. All these facilities were woefully lacking in many developing countries. Access to environmental technologies was, therefore, limited or non-existent. Such countries needed to be provided, through some form of cooperation at regional, subregional and global levels, with adequate financial resources and information about what was available, at what cost and where, so as to build up national and regional capacities for promoting environmentally sound and sustainable development.

58. ESCAP has taken initial steps in the above direction by organizing at Bangkok in October 1990, in cooperation with the United Nations Development Programme (UNDP), UNEP, the Asian Development Bank and the Government of Thailand, a Ministerial-level Conference on Environment and Development incorporating simultaneously an exhibition on environmentally sound technologies, "CLEANTECH, 1990", and a media non-governmental symposium on communication for environment. The Conference adopted a 32-paragraph declaration on environmentally sound and sustainable development affirming the commitment of Asia-Pacific countries to adopt an integrated approach to environment and development. A regional strategy for environmentally sound and sustainable development was supported and ESCAP had prepared a comprehensive regional input to assist the preparation for the 1992 United Nations Conference on Environment and Development in Brazil.

59. The representative of the International Technical Associations said his organization was a non-governmental body consisting of 26 international technical associations. During the past year, the Union had formed a joint executive committee with the World Federation of Engineering Organizations to consider eco-technological programmes for protecting the environment and mitigating the effects of natural hazards. They gave particular attention to enhancing the engineering contributions to the International Decade for Natural Disaster Reduction (1990s) (General Assembly resolution 44/236).

60. Partnerships in carrying out programmes highlighted in the report were valuable. The proposed network of international research centres could lead to a world-wide network of such centres, which might be known as the consultative group on international research on environmentally sound technologies. That idea should be given serious encouragement, as the engineering and technical communities could be valuable partners.

61. The representative of the International Association for Impact Assessment, a non-governmental organization, stressed the importance of applying the methodology of impact assessment, including technological forecasting and monitoring, backed by impact evaluation, in order to project not only the most probable but also the most desirable future. That was a "value-added" process, requiring the active participation of decision makers and the public alike. The Association had been founded in 1981 to bring together researchers, practitioners and users of technology, environmental impact, social impact and risk assessment and other specializations.

C. Financing science and technology for development

(Agenda item 4)

62. The Officer-in-Charge of the Centre for Science and Technology for Development introduced the agenda item and document A/CN.11/1991/3. He recalled the agreement reached at the Vienna Conference in 1979 on the establishment of a long-term, self-sustaining financing system and the failure of intergovernmental negotiations for nearly a decade to establish such a system. The decision of the Committee four years ago to transfer the fund for science and technology to UNDP was in the expectation that it might attract stronger donor support. As implicitly stated in General Assembly resolution 44/14, it no longer appeared possible that a separate and self-sustaining single multilateral fund would be established on a viable basis. It was in this context that in resolution 44/14 the Assembly had requested an examination of the possibility of organizing a coalition of resources. The current situation was that in spite of the emergence of the concept of endogenous capacity-building as a major developmental objective, the sources of funding for science and technology in general and, in particular, for capacity-building were diffuse and fragmented, with the result that the international community was unable to impart momentum to this crucial process.

63. Clearly, there was a need for new ideas on how to finance the scientific and technological needs of developing countries, especially for endogenous capacity-building. The bulk of resources should continue to come from domestic sources, which required appropriate policy adjustments by developing countries, particularly by inducing the participation of the private sector through tax and other incentives. Bilateral resources constituted the bulk of national support for science and technology and those resources should be targeted more directly towards endogenous capacity-building. Multilateral resources, although relatively modest, were critical and catalytic and provided an important channel for obtaining access to modern technologies. Multilateral support for science and new technologies was also diffused and, given the nature of science and technology and plurality within and outside the United Nations system, it was neither possible nor desirable to continue efforts to consolidate all of these resources. An equal imperative was to provide a more organized, larger pool of funds to support endogenous capacity-building in developing countries.

64. Following the directions of the General Assembly in its resolution 44/14, with the assistance of the Advisory Committee on Science and Technology for Development, the Centre had formulated some preliminary ideas on ways and means of organizing the coalition of resources. These were contained in the report of the Secretary-General. The Centre was continuing its work in this respect in cooperation with other funding bodies such as the Swedish Agency for Research Cooperation with Developing Countries. Based on the decision to be taken by the Committee, the Centre would continue this work, consult with other bilateral and multilateral funding bodies and prepare a more elaborate and detailed blueprint. There were, however, encouraging signs that the donor community itself was more receptive to some of these ideas, as indicated in the recent report of OECD on an expert meeting on science and technology. The Intergovernmental Committee could provide the needed political impulse and substantive guidance in the furtherance of this process.

65. The representative of the United Nations Fund for Science and Technology for Development referred in his statement to the changes in the situation of the Fund since 1989, the priority areas of its work, the recent situation and future prospects. A major problem since the Vienna Conference had been the gap between harsh realities and lofty expectations. The Fund had been able to establish a close working relationship with the Centre and, by consolidating its activities with the revolving fund for natural resource exploration, it had been possible to save about 40 per cent of the administrative costs, bringing down the overhead charges to 11 per cent. The five priority areas chosen by the Fund had been science and technology policies, including management of technology; technological innovation and entrepreneurship; technological information; quality control; and new and renewable sources of energy. The Fund also acted as a focal point for energy in UNDP, which was funded by the Organization of Petroleum Exporting Countries (OPEC). All the core resources were contributed by developing countries, although three fourths of its resources came from non-core contributions, totalling $8-$10 million per year. As for the future, there was clearly a need for explicit funding of science and technology activities, and the idea put forward in the report of the Secretary-General on a coalition of resources deserved to be supported and implemented.

66. Several representatives stated that the report of the Secretary-General on this topic was of a high quality, analytical and forward-looking. It explored possibilities and alternatives and provided a concrete and substantive basis for deliberation by the Committee. Adequate financing was the ultimate test to the commitment to science and technology. There existed now a certain opportunity to assemble a critical mass of resources for financing science and technology. The concept of endogenous capacity-building should also be included in the sectoral adjustment policies of the International Monetary Fund (IMF) and other bodies, since the current adjustment policies were proving to be harmful to the process of endogenous capacity-building in some developing countries. It was clear that the high expectations of the Vienna Conference on the possibility of creating a large, self-sustaining fund had not materialized and were not likely to materialize in the near future.

67. The conclusion of the report of the Secretary-General that no single source, bilateral or multilateral, could fill the existing void and that, given the reality of diminishing resources, only through a pooling of funds of like-minded donors could a critical mass of resources be mobilized was shared by several representatives. An organized coalition of resources was critical to the challenge of stimulating the development of endogenous science and technology capacities of developing countries. A representative of a developing country observed that the possibility of such a coalition performing the function of a revolving fund, which would purchase technologies, particularly in the public domain from developed countries, sell them to the developing countries, recoup the expenses and use them for future activities should be considered. There was a need for both a North-South cooperation as well as South-South cooperation and, in particular, regional cooperation. Venture capital funds were another means of financing science and technology. According to a recent OECD report, the aid given to developing countries in 1990 was in effect cut in half, constituting about 5 per cent of the military expenditures of those countries. Domestic efforts to finance science and technology, particularly endogenous capacity-building,

were by themselves inadequate in the absence of strong external financial support.

68. The following further comments were made by several representatives of developing countries. Mobilizing adequate financial resources for science and technology was one of the international community's major challenges at the present time. Since the United Nations Fund had been unable to attract the critical mass of core resources, it was crucial that other promising avenues should be explored. The current financial constraints faced by many developing countries were greatly exacerbating the science and technology gap with the developed countries. It was imperative therefore to seek a more effective coalition of resources from the United Nations system and from the other multilateral, regional and bilateral sources. As observed in the report of the Secretary-General, in the pursuit of a new financing concept, it was important not to lose sight of the lessons of the past concerning the United Nations Fund for Science and Technology for Development. The principle of universal support, especially encompassing all major donor countries was important, as also the need to promote the confidence of the donor community by more clearly defining the focus of the various programmes. The other pitfalls outlined in paragraph 50 of the report also needed to be borne in mind. The new modality of financing science and technology should focus on endogenous capacity-building based on commonly accepted and clearly defined criteria. Effective coordination between donor countries, as well as between the recipient institutions, should be ensured.

69. In view of the continuing debt crisis and the net transfer of resources from developing countries to developed countries, it was simply unrealistic to regard developing countries, particularly the least developed countries, as being responsible for the inability to mobilize domestic resources for the implementation of the important concept of endogenous capacity-building. For most of those countries, sustaining a subsistence-level standard of living was a daily struggle. The little that such countries could do towards endogenous capacity-building was itself a great sacrifice that could be boldly pursued only with a clear indication that such domestic resources would be supplemented by sufficient external assistance. While it was true that the involvement of the widest possible stakeholders could facilitate the implementation of science and technology policies, it was necessary to stress that unless those efforts were substantially supplemented by external resources, more frustrations were likely to be experienced by the developing countries. In Africa, an African Charter for Popular Participation in Development and Transformation had been established and endorsed by the General Assembly in resolution 45/178 C of 19 December 1990, and it had been hoped that, on issues concerning science and technology for development, the international community would provide the necessary assistance. In dealing with the activities of the United Nations Fund, it would have been more helpful if a measure of quantification had also been introduced. It would also be useful to be informed of the amount of resources expected to be spent on the projects listed in the annex to the report of the Secretary-General.

70. Representatives supported the new financing concept of coalition of resources. Although the United Nations system as a whole had not been successful in attracting the necessary resources of science and technology, the spirit of the Vienna Conference expressed in the concept of concrete programmes was mutually beneficial and would optimize scarce resources.

Strict separation had often led to underutilization, waste and a flow of external resources in support of activities that were demonstrably not of the highest domestic priority. Provision of domestic resources was also indicative of the firm commitment on the part of recipient countries, which in turn could give a sense of encouragement to external donors that the development assistance was meaningful and target-oriented. In the proposed new arrangement for financing science and technology, the least developed countries should be treated differently and a nominal internal contribution from these countries, if any, should be sufficient. External donors should be less assertive on their own assistance criteria and more responsive to the prioritized projects of recipient countries. As proposed in the report of the Secretary-General, the World Bank should be urged to consider its support for the efforts of developing countries to enhance their endogenous capacity in science and technology as a core element of its policies. This should apply also to regional development banks. The representatives of developing countries on the governing boards of those banks should propose such a policy shift, take the lead in demonstrating the high priority given to science and technology and affirm that they were prepared to make appropriate adjustments in the allocation of resources. Efforts of the United Nations Fund, in the face of financial constraints, to enhance science and technology capacity in developing countries were commendable. It was gratifying that the Centre and the Fund were working closely together to support endogenous capacity-building in science and technology, which was of crucial importance for sustainable long-term development of developing countries.

71. The representative of a developed country stated that although bilateral aid constituted a major part of external assistance and would continue to do so in the future, multilateral aid was unlikely to rise above the current levels. It was necessary to adapt a more realistic approach towards coordinating aid as a whole. In addition to regular consultations between donors and recipients, the proposal to establish an informal association of donors to mobilize the coalition of resources for endogenous capacity-building was worth pursuing. There was also a growing recognition in the donor community of the need for coordination of aid and a strategic shift towards capacity-building, as indicated in the report of a recent OECD meeting on science and technology.

D. Assessment of the impact of the activities of the United Nations system in promoting endogenous capacity-building in developing countries in the field of science and technology

(Agenda item 5)

72. The Officer-in-Charge of the Centre for Science and Technology for Development introduced the documents (A/CN.11/1991/4 and A/CN.11/1991/CRP.1) under this agenda item. He stated that the major task since the Vienna Conference in 1979 had been to codify the concept of endogenous capacity-building in science and technology, the centrepiece of the Vienna Programme of Action on Science and Technology for Development, and to operationalize it in the context of the specificity of individual countries so as to distinguish generic science and technology activities that were mostly subsumed under sectors such as agriculture and industry from those which could be deemed

directly contributory to that complex process. The Advisory Committee on Science and Technology for Development, having dealt with this subject and having made important contributions to the definition and design of the concept, was continuing its work with a view to producing more specific operational criteria.

73. The Administrative Committee on Coordination Task Force on Science and Technology for Development had initiated, in selected developing countries, pilot programmes that were being implemented by the Centre. In addition to Jordan, Nepal, Thailand and the United Republic of Tanzania, in which the programmes were already under implementation, six more countries had been chosen for similar pilot programmes supported by a trust fund provided by the Government of Germany through the United Nations Fund for Science and Technology for Development. A comprehensive evaluation of those activities, to be undertaken in early 1993, would be followed by a workshop in which country representatives, the United Nations system and various experts would participate. The Centre would then bring out a detailed "how-to" manual for the benefit of other developing countries. The Centre had adopted a two-pronged approach in preparing its contribution to the Intergovernmental Committee on Science and Technology for Development comprising the undertaking of impact assessments in the context of specific countries through inter-agency missions and the commencing of a more organized and broader process through the Advisory Committee. The summary of replies that, in line with considerations developed by the Advisory Committee, had been received from the different organizations of the United Nations system had been made available to the Intergovernmental Committee in the form of a conference room paper.

74. One representative said that his country was one of the few fortunate nations to be benefiting from the endogenous capacity projects. The programmes deserved strong support by the entire international community. The objectives of the International Development Strategy for the Fourth United Nations Development Decade would not be achieved in the field of science and technology for development in relation to modernizing and transforming the industrial and agricultural sectors if such current programmes did not culminate in implementable programmes.

75. He stressed that although the Centre's report had acknowledged some of the programmes' stated weaknesses, not all developing countries had been entrapped by those weaknesses. The report of the Secretary-General had addressed the issue of endogenous capacity-building, while the South Commission's report, The Challenge to the South, had addressed indigenous capacities. The report of the Secretary-General had stressed that endogenous capacity was neither the same as indigenous research capacity nor was it synonymous with infrastructure-building. Though conceptually complex, endogenous capacity-building was essential for a scientific and technological breakthrough in developing countries. Since the report had attributed the failure to implement the goals of the Vienna Programme to an absence of clarity in the endogenous capacity concept and in its implementation, the Intergovernmental Committee should analyse that assertion carefully.

76. In recent years transfer of technology from developed to developing countries had met with determined unwillingness from the developed countries. Since, as the report had noted, many developing countries were struggling to

survive as pre-industrial communities, the need for external assistance to achieve genuine endogenous capacity could not be overemphasized. In that regard, he expressed appreciation to the mission of experts that had recently visited his country with the purpose of defining a programme of technical assistance in the field of building material production based on a strategy of technology transfer.

77. The representative of a developed country said that the situation with regard to the stock of knowledge might be improved through establishment of local subsidiaries of international corporations, imports, licensing, joint ventures, collaboration agreements and the hiring of experts. "Absorptive capability" referred to the application of such knowledge, which required creativity and innovation and might be promoted through the formulation of appropriate governmental policies. He supported the argument that developing countries must develop their absorptive capability, namely, the ability to choose, to apply and to adapt. That argument had been the central theme of the Vienna Programme.

78. He emphasized that developing countries must apply the general concept of endogenous capacity-building in the light of their specific needs within the field of science and technology, reflecting their domestic socio-economic, geopolitical and cultural status, as well as their stage of development. Endogenous capacity-building was thus a country-specific operation, that required strong initiative by the appropriate authorities in all countries wishing to launch such a process.

79. The representative stressed that the Centre must work to sensitize the bilateral and multilateral donor community to the importance of endogenous capacity-building by developing countries and he recommended that the Centre encourage the appropriate authorities in developing countries to identify and assess their technology needs and plan projects for endogenous capacity-building.

80. The representative of another developed country said that his delegation continued to attach major importance to endogenous capacity-building in developing countries. Those countries were still not in a position to backstop their evaluation and selection of modern technologies with an adequate number of experts. They were experiencing the same lack in the increasingly important area of assessment of the impact of new technologies on society, the economy and the environment. In view of the global threat to climate and to ecological resources, he said, growing importance should be given to the question of the environmental compatibility of new technologies. Only countries with an adequate capacity of their own in that area would be able, in the long term, to reconcile modern technological imperatives with the preservation of their natural resources as a basis for sustained economic growth and for meeting their citizens' basic requirements. He agreed with the Secretary-General that endogenous capacity-building in science and technology was the critical component of sustainable development. That subject should be given broader consideration in the course of further work by the Centre and in view of the forthcoming United Nations Conference on Environment and Development in 1992.

81. The representative of a developed country agreed with the report of the Secretary-General, especially on the need for close coordination of activities

within the United Nations system. He commended the efforts of the Advisory Committee, which attached great importance to endogenous capacity-building, and supported the conclusion that the impact of the United Nations system in promoting endogenous capacity-building should be global in character.

82. As interrelated global problems led to new requirements the harmonization of targets and objectives was crucial. Changes in the political climate would undoubtedly have an impact on scientific and technological development. In the light of the importance of multilateral cooperation for endogenous capacity-building in the developing countries, the need to look for new approaches in preparing methodologies and criteria for assessment was urgent. He commended the work done by UNESCO in that field and hoped the Centre would further contribute to the work being done. He also hoped that cooperation among the members of the Administrative Committee on Coordination Task Force would further improve.

83. The representative of ILO drew conclusions on endogenous capacity-building based on the work of his organization. With respect to human resource development, he said, endogenous capacity-building involved three distinct stages, namely, the nurturing of individual skills, the assembling of the persons embodying such skills into effective organizations and the infusion of zeal and purpose into those skills. He pointed out that the process of endogenous capacity-building varied according to the size of the country as well as from sector to sector. Small countries faced intractable difficulties in expanding technological capacity and in devising and implementing effective technology policies. As for differences among economic sectors, endogenous capacity-building in the secondary sector could be task-specific while endogenous capacity-building in the tertiary sector could not be measured by the mastery of a technology. Indeed, an ILO secondary-sector case-study had concluded that in addition to macroeconomic policy instruments, both governmental and non-governmental institutions played a crucial role in the accumulation of technological capacity over time.

84. He stated that endogenous capacity-building might pose a policy dilemma since existing technical capability constituted a scarce resource that could be deployed either to generate current output and employment or to create greater technological capability. Such a policy dilemma might be translated into a choice between immediate smaller increases in output and employment and much larger future gains in both areas.

85. The representative of the Bangladesh Centre for Advanced Studies said that in his country the concepts of economy and ecology were complementary. Many of the ecological, resource and environmental disasters now besetting the world were the consequence of the so-called development stimulated by science and technology. A point had been reached where the sustainability of the planet itself was increasingly in doubt.

86. Sustainable development was so far the most used, even abused, term of the 1990s. Theories about sustainable development that had evolved under the auspices of the United Nations were very admirable, but as long as the most desperate problems of the developing countries were not addressed all promises were hollow. He himself came from a "sub-subsistence" country with a "stressed" ecology. He had recently been assigned to define an achievable and acceptable scenario for a world of radically changed climate for the year 2050

and he had concluded that without mass participation in programmes to avert environmental and economic disaster and a radical change in lifestyles, particularly in the developed countries, such a society could not be achieved.

87. For science and development to bring about transformation in developing countries there had to be a reordering of priorities and a readjustment of focus. In past centuries, there had been a net increase in the flow of wealth from South to North, whereas the flow of technology from North to South had been restricted. That restricted flow had been due in part to the South's incapacity to use relevant information. However, efforts must now be made to reverse that flow. There must be an unhindered flow of information and technology from North to South. Acceptance of its moral responsibility by the North was a prerequisite for such a flow.

88. In the world's poorest countries the environment and the economy were inseparable from survival. Scarce resources that had been harmoniously exploited for centuries were now under such pressures, from deforestation and overfishing, for example, as to be threatened with total depletion. Development to meet the needs of the few were denying the basic tools of survival to the many. The poorest countries had often depended on the most vulnerable systems. He was pleased that the Intergovernmental Committee had made their survival a priority question.

89. The representative of a developing country said that since the adoption of the Vienna Programme of Action the role and value of science and technology had acquired particular importance, and were now admitted as a critical determinant of any sound development plan. The United Nations Centre for Science and Technology for Development was in a unique position to play a leading role in the rapid development of resources to promote global progress. He reviewed activities in the field of science and technology and said his country, like other developing countries, was in dire need of access to technologies developed in industrialized countries. Also, there was urgent need for an agreement to accelerate the transfer of technologies to developing countries.

90. He said the objective of his country was to create strategic planning capabilities to promote and direct long-term industrial and technological development. For those efforts to succeed, however, the sustained and continued support of the Centre and the United Nations Fund for Science and Technology for Development was needed. Referring to the institutional arrangements provided by the Vienna Programme of Action, he said he strongly believed that the Centre should be allowed to acquire the much-needed critical mass that would enable it to respond better to the mandate given to it by the General Assembly. Further, the Centre and other United Nations agencies should enhance their efforts to secure more active involvement of the private sector in efforts to strengthen the scientific and technological base of developing countries.

E. Activities of the United Nations system in science and technology for development, including those of the Centre for Science and Technology for Development and the Advisory Committee on Science and Technology for Development

(Agenda item 6)

91. In his introduction, the Officer-in-Charge of the Centre for Science and Technology for Development stated that the item dealt with the Committee's original mandate given by the General Assembly to assist it in the task of monitoring the activities and programmes of the United Nations system in science and technology for development. The ultimate goal of that task was to improve the quality of the response of the system as a whole to the needs of Member States in science and technology for development. As the Committee was aware through more than a decade of its work on that issue, the task of inter-agency coordination was complicated by the pervasiveness of science and technology activities throughout the system and the complex set of interrelations that existed among the intergovernmental organs involved, both within the United Nations and the specialized agencies. However, he believed that the report of the Director-General on new developments and trends in the programmes and activities of the United Nations system in science and technology (A/CN.11/1991/5) reflected a recent evolution in the system as a whole towards an improved recognition of the substantive goals of the Vienna Programme of Action.

92. The Officer-in-Charge also introduced the report of the Secretary-General on the activities of the Centre (A/CN.11/1991/9).

93. The Chairman of the Administrative Committee on Coordination Task Force on Science and Technology for Development expressed his view that the substantive bodies of the Administrative Committee might not always have lived up to their expectations. The agencies had often attended coordinating meetings without the wish to be coordinated. However, the Task Force had tried to identify common interests and had voluntarily developed innovative coordination through inter-agency missions. There was a need for additional efforts to develop a stable basis for coordination so as to make the Task Force more effective and better integrated in its United Nations system activities.

94. At its recent session, the Task Force had considered the topic of biotechnology and had prepared a bibliography on the subject. In the view of the Chairman, biotechnology was not an exclusive activity of any one specialized agency. Nevertheless, the combined activities in that area of most of the agencies could assume proper significance.

95. The Chairman of the Advisory Committee on Science and Technology for Development introduced and summarized the report of his Committee (A/CN.11/1991/6). He informed the Intergovernmental Committee that the Advisory Committee had chosen as the theme of its next session the role of science and technology in small developing countries, and that it welcomed suggestions from members of the Intergovernmental Committee for specific policy issues that might be addressed by that theme.

96. Many of the delegations expressed their appreciation for the report of the Director-General. The representative of one developing country noted that his country was impressed with the information but would have liked to see specific recommendations on the two key issues of coordination and harmonization. He was interested to note a thematic commonality in the United Nations system in fields such as biotechnology, micro-electronics and new materials, and in endogenous capacity-building. He expressed his desire for more comprehensive and detailed listing of those developments.

97. Several representatives reiterated their desire to see the Centre assume a stronger role in coordination, as foreseen in General Assembly resolution 34/218. The representative of one developing country pointed out that the Centre was the institutional instrument designed to affirm the central role of the United Nations in the promotion of science and technology for development.

98. Appreciation was also expressed for the Administrative Committee on Coordination Task Force on Science and Technology for Development. One representative from a developed country stated that he would like to see the role of the Task Force further strengthened.

99. Many representatives expressed their strong support for the endogenous capacity-building pilot projects and some expressed their desire to have similar projects implemented in their countries in addition to those already under way.

100. The representative of a developed country stated that his delegation was pleased to see that activities of the Centre were focused on the central theme of the Vienna Programme of Action, namely, endogenous capacity-building of developing countries. He proposed that, in order to improve the pilot projects, the respective countries should engage external consultants sufficiently familiar with their socio-economic situations and with the area of science and technology and make better use of mobilizing technical expertise available in the United Nations system.

101. A representative of a developed country emphasized the importance of endogenous capacity-building and pointed out that the theme on transfer and management of environmentally sound technologies was closely related to it. He therefore welcomed the organization by the Centre of a series of conferences on policy issues and options related to an assessment of clean-coal technology. He also noted that endogenous capacity-building was an important prerequisite for access to information and data on environmentally sound technologies and suggested that the possibilities of regional cooperation in that field be strongly considered.

102. A representative of a developing country said that the endogenous capacity-building project being carried out in his country, in cooperation with the Centre, was of great significance to the country.

103. Another representative of a developing country expressed his appreciation for the activities of the Centre and their increasingly practical ability to respond effectively to the increased needs of developing countries in science and technology. He singled out particularly the seminar on desertification, held in China in 1990, at which emphasis was placed on endogenous capacity-building to combat desertification and develop arid and semi-arid areas.

104. The representative of a developing country pointed out that the report of the Director-General contained suggestions regarding the promotion of entrepreneurship in developing countries in small and medium-sized industries, enterprises to develop environmentally sound technologies and assistance to facilitate establishment of consultancy businesses for technological management. He expressed his desire to receive additional information on what was envisaged and what practical measures were feasible to realize those objectives. The representative of a developed country also stressed the need to examine closely the problem of creating market mechanisms for technological innovations. In particular he suggested that attention be given to the legislative measures that could affect innovation.

105. Several representatives expressed their continued support for the Advanced Technology Assessment System and emphasized the need to approach it from both a methodological and a capacity-building point of view. The representative of a developed country suggested that increasing attention be given to developing the endogenous capacity of technology assessment in developing countries and not just to satisfying curiosity. Several representatives from both developed and developing countries supported the idea of a 1992 meeting on the role of technological monitoring, assessment and forecasting. One representative of a developing country proposed that the suggestion be examined in depth.

106. A representative of a developed country stressed the importance of being able to choose, possess, apply and adapt environmentally sound technologies, including adaptation to the social, economic, technological and environmental conditions of developing countries. A necessary prerequisite was investments in the development of human resources through education and enhanced research capabilities.

107. Many of the delegations expressed their appreciation for the report of the Advisory Committee and suggested that the recommendations in the report could provide a useful input for the United Nations Conference on Environment and Development.

108. The representative of a developed country noted that the report provided useful guidance and proposals on the future orientation of science and technology for development. Another representative of a developed country supported the Advisory Committee's proposal for setting up international technical parks, which could be the concrete embodiment of cooperation.

109. Several representatives expressed their appreciation for the report on the methodologies and asked the Committee to consider ways in which its recommendations might be implemented.

110. The representative of a developing country proposed that the next theme of the Intergovernmental Committee should take advantage of newly developed mathematical modelling, especially non-linear modelling, in order to examine and compare the results of similar and different approaches to applying science and technology to development. The comparison would be applicable to sectors and sub-sectors both within a single country and between different countries.

111. The representative of the United Nations University provided information

on its research programmes, which included not only basic scientific research but also the application of science and technology in support of the development process. In the context of the University's Second Medium-Term Perspective (1990-1995), the research agenda would focus on advances in science and technology for development. Major aspects of the related work were central to the work of the Institute for New Technologies at Maastricht, the Netherlands, the International Institute for Software Technology at Macau, the Programme of Biotechnology in Latin America and the Caribbean at Caracas, and the programmes coordinated by the University Centre in Tokyo. He noted that the University had developed close collaborative ties with the Centre in several areas. One of those was a joint project to set up a machine-readable register of research in the United Nations system, initially in the area of science and technology and subsequently in other areas.

112. The representative of ILO highlighted some of its experiences in monitoring and forecasting the social impact of newly emerging technologies, especially on employment, productivity and the working environment. The areas covered by the organization's technology assessment exercise included biotechnology; micro-electronics-related technologies and robotization.

113. The representative of ESCAP summarized the organization's activities in relation to endogenous capacity-building in science and technology for development, which had somehow not been reflected in the report of the Director-General.

114. The representative of the Department of International Economic and Social Affairs stated that the World Economic Survey, prepared by the Department, provided an overall account of economic trends, including those which affected sustainable development. The Department attached great importance to the role of entrepreneurship and had thus assisted in the promotion of the private sector in general and more specifically in the development of entrepreneurship in, for instance, small and medium-sized enterprises.

115. The representative of the Third World Academy of Sciences called attention to the Academy's achievements in providing due recognition to scientific excellence in the third world as well as research grants and fellowships to promising young scientists from the South. He also referred to the proposal being made by the Academy's Chairman to develop a network of research and training centres of excellence in science and technology and in environmental sciences, which was being welcomed by many countries. In his view, the need for coordination being referred to in the Director-General's report between the United Nations system and the Third World Academy of Sciences and its network of scientific institutions should be extended to new non-governmental organizations created at the regional level.

116. The representative of the European Council of Social Research on Latin America underlined the importance of social sciences in the field of science and technology for development. His organization's preoccupation was the potential repercussion of a restructuring of the relationship beween Europe and Latin America. The Council also proposed a special think tank within the Council with possible support of the United Nations system, to focus on the sociology of science and technology, and in particular to analyse the social conditions for the implantation of science and technology in developing countries.

F. Programme questions

(Agenda item 7)

117. The Officer-in-Charge of the Centre for Science and Technology for Development drew the attention of the Committee to document A/CN.11/1991/CRP.3 covering this agenda item. He said that the Centre's programme activities for the biennium 1992-1993 fell under four subprogrammes, namely, endogenous capacity-building and resource mobilization; the Advanced Technology Alert System; coordination and harmonization of activities of the United Nations system on science and technology; and information services.

118. He indicated that those activities would continue to focus on two major areas. The first area would respond to issues of international concern through various technology assessment exercises with special emphasis on preparation of the substantive theme for the deliberations of the Intergovernmental Committee and the General Assembly. The second area of activities was to provide orientation and assistance to selected developing countries in establishing science and technology policies and promoting policy dialogues on science and technology in the development process. The activities related to coordination and harmonization as well as information and communication were of a supportive nature for the implementation of the above two major areas of activities.

119. The representative of ECA stated that the programme activities should include specific roles for the regional commissions.

V. ACTION TAKEN BY THE COMMITTEE

A. Draft resolution A/CN.11/1991/L.4

120. At the 113th meeting, on 1 May, the representative of Ghana (on behalf of the States Members of the United Nations that are members of the Group of 77) introduced a draft resolution, entitled "Science and technology for development in the 1990s" (A/CN.11/1991/L.4).

121. At the 114th meeting, the Secretary orally revised the draft resolution. Following further amendments proposed by the representatives of Malawi, Ghana (on behalf of the States Members of the United Nations that are members of the Group of 77) and Brazil, the Committee adopted the draft resolution as orally revised and amended (see para. 3).

B. Election of the Chairman and nomination of other officers for the twelfth session of the Committee, and appointment of a member of the Advisory Committee on Science and Technology for Development

122. For its consideration of the item, the Committee had before it two notes by the Secretariat on the procedure for the appointment of members of the Advisory Committee on Science and Technology for Development (A/CN.11/1991/8) and the interim appointment of a member of the Advisory Committee on Science and Technology for Development (A/CN.11/1991/10).

123. At its 114th meeting, on 3 May, the Committee decided that since the cycle of nomination of members of the Advisory Committee on Science and Technology for Development did not coincide with the biennial cycle of sessions of the Committee, it would convene an extraordinary session in 1992 to appoint 14 members for a three-year term (1993-1995) to fill vacancies that would occur on 31 December 1992. It further decided that, in order to ensure that, in the future, these appointments coincided with the regular sessions of the Intergovernmental Committee on Science and Technology for Development, the terms of office of members of the Advisory Committee should be changed from three to four years, starting with those whose terms started on 1 January 1994. They would from then on serve only one four-year term.

124. At the same meeting, the Committee decided to appoint Mr. Vladimir A. Labunov (Union of Soviet Socialist Republics) as a member of the Advisory Committee for the remainder of the term of Mr. Alexandre P. Vladislavlev, who had resigned from the Advisory Committee.

125. At the same meeting, the Committee agreed to continue to work on an informal basis with the bureau of the eleventh session to follow the substantive preparations for the twelfth session, as proposed by several representatives; this would also give the Committee time to look into the nominations of the members of the bureau for the twelfth session. This arrangement would not prejudge the composition of the new bureau.

C. Draft provisional agenda for the twelfth session of the Committee

126. At the 114th meeting, on 3 May, the Secretary orally revised the draft provisional agenda for the twelfth session of the Committee, as contained in document A/CN.11/1991/L.3/Add.6.

127. At the same meeting, the representatives of Egypt and the Netherlands proposed further amendments to the provisional agenda. The Committee then adopted the draft provisional agenda for the twelfth session contained in document A/CN.11/1991/L.3/Add.6 as orally revised and amended. The draft provisional agenda reads as follows:

1. Election of officers.

2. Adoption of the agenda and organizational matters.

3. Substantive theme:

   The contribution of technologies, including new and emerging ones, for the industrialization of developing countries and for the strengthening of regional and global integration processes, including proposals on ways and means of transferring such technologies and for their incorporation in the productive sector of those countries.

   Documentation

   Report of the Secretary-General on the contribution of technologies, including new and emerging onces, for the industrialization of developing countries and for the strengthening of regional and global integration processes.

4. Activities of the United Nations system:

(a) Coordination and cooperation in science and technology within the United Nations system;

   Documentation

   Report of the Secretary-General on ways and means of improving the quality of coordination and cooperation in science and technology for development.

(b) Assessment of the impact of activities of the United Nations system related to the process of creating and strengthening endogenous capacity-building in science and technology in developing countries;

   Documentation

   Report of the Secretary-General on the enhancement of the impact of the activities of the United Nations system on the creation and strengthening of endogenous capacities in science and technology.

(c) Activities of the Centre for Science and Technology for Development;

Documentation

Report of the Secretary-General on the activities of the Centre for Science and Technology for Development.

5. Activities of the Advisory Committee on Science and Technology for Development.

Documentation

Report of the Advisory Committee on Science and Technology for Development.

6. Transfer and application of environmentally sound energy technologies.

Documentation

Report of the Secretary-General on the utilization and marketing of energy technologies, focusing the policy issues and options for the transfer and application of environmentally sound technologies.

7. Financing science and technology for development, including the activities of the United Nations Fund for Science and Technology for Development.

Documentation

Report of the Secretary-General on proposals for the organization of a coalition of resources to finance science and technology for development.

8. Programme questions.

9. Election of the Chairman and nomination of other officers for the thirteenth session of the Committee, and appointment of members of the Advisory Committee on Science and Technology for Development.

10. Provisional agenda and organization of work for the thirteenth session of the Committee.

VI. CONCLUDING REMARKS

128. The Officer-in-Charge of the Centre for Science and Technology for Development said that the resolution adopted by the Committee reflected views and suggestions of the representatives of different countries, as well as intergovernmental and non-governmental organizations.

129. The Centre was prepared, with the support of the Director-General for Development and International Economic Cooperation, and in close cooperation with the Task Force on Science and Technology for Development of the Administrative Committee on Coordination, to enhance its efforts in responding to the requests of the resolution. The future report would not be an academic exercise, rather it would be based on available reports, empirical data and case-studies. Special attention should be devoted to the situation in the least developed countries, as scientific communities in those countries deserved solidarity. Ways and means should be worked out to involve representatives of those countries in the future deliberations of the Committee. He said it was important that the Committee function as a forum involving individuals, representing scientific communities, as well as legislative bodies. The international dimension should be considered in order to accommodate that purpose.

130. The Chairman of the Committee, in his concluding remarks, said the Committee had analysed the world situation in the field of science and technology, as well as how to make its role more efficient. The resolution adopted by the Committee would provide the guidelines for its work during the next session in 1993.

131. Referring to the eleventh session, he said a spirit of cooperation had guided the Committee's activities, but there was still deep concern and even apprehension over the difficult tasks that lay ahead. The world was in serious disequilibrium and still knew too little of the remedies to be applied to ensure stability. He wished to reiterate his previously expressed personal belief that in the 1990s science would provide the knowledge and the new vistas that would help to modify the world.

132. He expressed the hope that in future all people would be equal and that in the third millennium the world would no longer be divided in terms of developed and developing countries.

REPORT OF THE INTERGOVERNMENTAL COMMITTEE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

GENERAL ASSEMBLY

OFFICIAL RECORDS: FORTY-SIXTH SESSION

SUPPLEMENT No. 37 (A/46/37)

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UNITED NATIONS

New York, 1991

NOTE

Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

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[26 August 1991]

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I. INTRODUCTION

1. The General Assembly, in its resolution 34/218 of 19 November 1979, entitled "United Nations Conference on Science and Technology for Development", decided to establish an Intergovernmental Committee on Science and Technology for Development. The Assembly also decided that the Committee should be open to the participation of all States as full members and that the representation of Member States in the Committee should be at a high level.

2. The General Assembly also decided that the Committee should submit its reports and recommendations to the Assembly through the Economic and Social Council, which may transmit to the Assembly such comments on the reports as it deems necessary, particularly with regard to coordination.

II. RESOLUTION ADOPTED BY THE INTERGOVERNMENTAL COMMITTEE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT AT ITS ELEVENTH SESSION

3. At its eleventh session, the Intergovernmental Committee adopted the following resolution (resolution 1 (XI)):

Resolution

1 (XI)

The Intergovernmental Committee on Science and Technology for Development recommends to the General Assembly the adoption of the following resolution:

Science and technology for development in the 1990s

A

Environmentally sound technology

The Intergovernmental Committee on Science and Technology for Development,

Recalling General Assembly resolutions 44/14 A to E of 26 October 1989, 44/228 of 22 December 1989 and S-18/3 of 1 May 1990,

1. Takes note with appreciation of the report of the Secretary-General on ways and means of ensuring the participation of developing countries in international cooperation for research on and development of environmentally sound technologies, 1/ and the rapid and effective transfer of such technologies to the developing countries, as well as the report of the Advisory Committee on Science and Technology for Development; 2/

2. Requests the Secretary-General to make those reports available to the Secretary-General of the United Nations Conference on Environment and Development before the third session of the Preparatory Committee for the Conference for consideration, together with the views expressed by delegations on the subject during the eleventh session of the Intergovernmental Committee;

3. Requests the Centre for Science and Technology for Development to prepare, in cooperation with the Department of International Economic and Social Affairs, the Department of Technical Cooperation for Development and other relevant United Nations bodies, a comprehensive study on the utilization and marketing of energy technologies, drawing upon the studies conducted by other organizations and bodies of the United Nations system, and based on legislative, institutional and other specific experiences of selected

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1/ A/CN.11/1991/2.

2/ A/CN.11/1991/6.

countries and focusing on policy issues and options for an effective transfer and application of environmentally sound technologies, and to report to the Intergovernmental Committee thereon at its twelfth session;

4. Considers it important that ways of improving the dissemination of information on environmentally sound technologies, including the establishment of a network of national and international research centres on environmentally sound technologies, based primarily on existing regional research, development and demonstration centres, and data banks, linking the regional centres to national institutions and enterprises, should be examined by the Preparatory Committee for the United Nations Conference on Environment and Development as a modality for access to environmentally sound technology;

5. Requests the Secretary-General of the United Nations to make available to the Secretary-General of the Conference the technical resources of the Advisory Committee on Science and Technology for Development in order to contribute to the preparatory work of the Conference on the transfer of environmentally sound technology to all countries, in particular to developing countries;

6. Requests the Chairman of the Intergovernmental Committee on Science and Technology for Development to transmit part A of the present resolution to the Chairman of the Preparatory Committee for the Conference as the substantive contribution of the Intergovernmental Committee to the work of the Preparatory Committee.

B

Activities of the United Nations system on science and technology for development

The Intergovernmental Committee on Science and Technology for Development,

Recalling General Assembly resolutions 34/218 of 19 December 1979 and 44/14 A to E of 26 October 1989,

Recalling also its resolution 45/196 of 21 December 1990 on industrial development cooperation and the diversification and modernization of productive activities in developing countries,

1. Requests the Secretary-General, drawing upon the work of the relevant organs, organizations and bodies of the United Nations system to present a report to the Intergovernmental Committee at its twelfth session on the following theme, which will be the substantive theme at that session: "The contribution of technologies, including new and emerging ones, for the industrialization of developing countries and for the strengthening of regional and global integration processes, including proposals on ways and means of transferring such technologies and for their incorporation in the productive sector of those countries";

2. Requests the Secretary-General of the United Nations to submit a report to the Intergovernmental Committee at its twelfth session in 1993 on ways and means of improving the quality of global coordination and cooperation in the area of science and technology for development, as well as system-wide coordination within the United Nations system;

3. Requests the Executive Director of the Centre for Science and Technology for Development, in cooperation with the relevant organs, organizations and bodies of the United Nations system, to advise all countries, in particular the developing countries, at their request, in their efforts to promote the development of small and medium-sized enterprises in environmental impact assessment, research on and development of environmentally sound technologies, in both the public and private sector;

4. Urges the international community and the United Nations system, particularly the Centre for Science and Technology for Development, to take steps towards the full implementation of the Paris Declaration, adopted by the Second United Nations Conference on the Least Developed Countries, 3/ and the Programme of Action for the Least Developed Countries for the 1990s 3/ in the field of science and technology;

5. Notes the efforts of the Secretary-General of the United Nations Conference on Trade and Development to hold consultations on a code of conduct for the transfer of technology, and encourages Member States to participate in these consultations with a view to facilitating an agreement thereon.

C

Endogenous capacity-building

The Intergovernmental Committee on Science and Technology for Development

1. Urges the Centre for Science and Technology for Development to continue and enhance activities to support the efforts of developing countries to build and strengthen their endogenous capacities in science and technology, and in so doing also to pursue actively the involvement of the private sector in endogenous capacity-building projects;

2. Requests the Centre to support and participate in programmes of research and development of technology in the least developed countries with the aim of developing endogenous capacities and strengthening national scientific and technological infrastructures, and to assist in the formulation of appropriate policies to facilitate the transfer of technology;

3. Requests the Advisory Committee on Science and Technology for Development to continue its work to develop operational criteria to facilitate the design and assessment of programmes and activities to strengthen the endogenous scientific and technological capabilities of developing countries;

4. Requests the Secretary-General, in cooperation with the organs, organizations and bodies of the United Nations system, to submit to the Intergovernmental Committee, at its twelfth session, an analytical report on how the United Nations system can more actively enhance the impact of its activities related to the process of creating and strengthening endogenous capacity-building in science and technology in developing countries;

3/ A/CONF.147/Misc.9.

5. Requests the Centre for Science and Technology for Development, in cooperation with the appropriate organs, organizations and bodies of the United Nations system and appropriate organizations in developing countries, through its advanced technology assessment network and making full use of its endogenous capacity-building pilot studies, to organize workshops and other relevant activities in developing countries to explore both the methodologies for and the organization of technology monitoring, assessment and forecasting most appropriate to the needs and resources of the countries concerned;

D

Financing science and technology for development

The Intergovernmental Committee on Science and Technology for Development

1. Recommends that:

(a) Countries should increase efforts to support the process of endogenous capacity-building in science and technology, taking into account the Vienna Programme of Action on Science and Technology for Development 4/ and its basic goals;

(b) At the global level, a more diversified, innovative and flexible approach be sought to finance endogenous capacity-building in science and technology in order to enhance a broad coalition of resources drawn from domestic, bilateral and multilateral sources;

2. Takes note of the important work undertaken by the United Nations Fund for Science and Technology for Development and its status as an identifiable entity within the United Nations Development Programme under the policy guidance of the Intergovernmental Committee and in accordance with the priorities agreed upon by it;

3. Notes the concept and mode of operation outlined in the report of the Secretary-General as regards organizing a more effective coalition of resources, 5/ and requests the Secretary-General to submit to the Intergovernmental Committee, at its twelfth session, proposals for action in this respect, prepared in close cooperation with the United Nations Fund for Science and Technology for Development in consultation with the donor community, including the regional development banks and organizations of the United Nations system, especially the World Bank and the United Nations Development Programme.

4/ Report of the United Nations Conference on Science and Technology for Development, Vienna, 20-31 August 1979 (United Nations publication, Sales No. E.79.I.21 and Corr.1 and 2), chap. VII.

5/ See A/CN.11/1991/3.

III. ORGANIZATIONAL MATTERS

A. Opening and duration of the session

4. The eleventh session of the Intergovernmental Committee on Science and Technology for Development was held at United Nations Headquarters from 22 April to 3 May 1991.

5. The Committee held 11 meetings (104th to 114th), as well as a number of informal meetings.

B. Membership and attendance

6. In accordance with the provisions of General Assembly resolution 34/218, the Committee is open to the participation of all States as full members. Representatives of the following States attended the eleventh session of the Committee:

Algeria, Antigua and Barbuda, Argentina, Bahamas, Bangladesh, Barbados, Belgium, Benin, Bolivia, Brazil, Bulgaria, Burkina Faso, Burundi, Byelorussian Soviet Socialist Republic, Cape Verde, China, Colombia, Congo, Costa Rica, Côte d'Ivoire, Cuba, Cyprus, Czechoslovakia, Ecuador, Egypt, Fiji, France, Gabon, Germany, Ghana, Greece, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Lesotho, Madagascar, Malawi, Malaysia, Mali, Mexico, Mongolia, Morocco, Nepal, Netherlands, Nicaragua, Nigeria, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Singapore, Sri Lanka, Sudan, Suriname, Swaziland, Sweden, Thailand, Togo, Tunisia, Turkey, Uganda, Ukrainian Soviet Socialist Republic, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America, Uruguay, Vanuatu, Venezuela, Viet Nam, Yugoslavia, Zambia, Zimbabwe.

7. The following United Nations organizations and bodies were represented:

Department of International Economic and Social Affairs

United Nations Conference on Environment and Development

United Nations Conference on Trade and Development

United Nations Environment Programme

United Nations Population Fund

United Nations University

Economic Commission for Africa

Economic and Social Commission for Asia and the Pacific

United Nations Fund for Science and Technology for Development

World Food Council

8. The following specialized agencies were represented:

International Labour Organisation

Food and Agriculture Organization of the United Nations

United Nations Educational, Scientific and Cultural Organization

World Health Organization

World Bank

United Nations Industrial Development Organization

9. The following intergovernmental organization was represented:

Asian-African Legal Consultative Committee

10. The following non-governmental organizations were represented:

Bangladesh Centre for Advanced Studies

European Council for Social Research on Latin America

International Association of Impact Assessment

International Chamber of Commerce

International Institute for Applied Systems Analysis

International Society of Technology Assessment in Health Care

Third World Academy of Sciences

Union of International Technical Associations

C. Election of officers

11. At its 104th meeting, on 22 April, the Committee elected by acclamation the following officers for its eleventh session:

Chairman: Ladislav KOVAC (Czecholovakia)

Vice-Chairmen: Dulce Arnao de UZCATEGUI (Venezuela)
Ahmed DJOGHLAF (Algeria)

Rapporteur: Mahbub KABIR (Bangladesh)

12. At its 111th meeting, on 29 April, the Committee elected by acclamation Mr. George Kint (Belgium) as Vice-Chairman.

D. Documentation

13. The Committee had before it the following documents:

(a) Provisional agenda (A/CN.11/1991/1 and Corr.1);

(b) Report of the Secretary-General on ways and means of ensuring the participation of developing countries in international cooperation for research on and development of environmentally sound technologies, and the rapid and effective transfer of such technologies to the developing countries (A/CN.11/1991/2);

(c) Report of the Secretary-General on financing science and technology for development (A/CN.11/1991/3);

(d) Report of the Secretary-General on the assessment of the impact of the activities of the United Nations system in promoting endogenous capacity-building in developing countries in the field of science and technology (A/CN.11/1991/4);

(e) Report of the Director-General for Development and International Economic Cooperation on new developments and trends in the programmes and activities of the United Nations system in science and technology for development (A/CN.11/1991/5);

(f) Report of the Advisory Committee on Science and Technology for Development on its eleventh session (A/CN.11/1991/6);

(g) Note by the Secretary-General on the registry of national focal points for science and technology for development (A/CN.11/1991/7 and Corr.1);

(h) Note by the Secretariat on the procedure for the appointment of members of the Advisory Committee on Science and Technology for Development (A/CN.11/1991/8);

(i) Report of the Secretary-General on the activities of the Centre for Science and Technology for Development (A/CN.11/1991/9);

(j) Note by the Secretary-General on the interim appointment of a member of the Advisory Committee on Science and Technology for Development (A/CN.11/1991/10);

(k) Note by the Secretary-General on the summary of correspondence received from organs, organizations and bodies of the United Nations system (A/CN.11/1991/CRP.1);

(l) Note by the Secretary-General on planning and managing science and technology policy (A/CN.11/1991/CRP.2);

(m) Note by the Secretariat on the proposed programme of work of the Centre for Science and Technology for Development for the biennium 1992-1993 (A/CN.11/1991/CRP.3);

(n) Note by the Secretariat on the state of preparation of documentation for the session (A/CN.11/1991/L.1);

(o) Note by the Secretariat on the organization of the work of the session (A/CN.11/1991/L.2).

E. Adoption of the agenda

14. At its 104th meeting, on 22 April, the Committee adopted the following agenda for the session:

1. Election of officers.

2. Adoption of the agenda and other organizational matters.

3. Substantive theme: ways and means of ensuring the participation of developing countries in international cooperation for research on and development of environmentally sound technologies, and the rapid and effective transfer of such technologies to the developing countries.

4. Financing science and technology for development.

5. Assessment of the impact of the activities of the United Nations system in promoting endogenous capacity-building in developing countries in the field of science and technology.

6. Activities of the United Nations system in science and technology for development, including those of the Centre for Science and Technology for Development, and the Advisory Committee on Science and Technology for Development.

7. Programme questions.

8. Election of the Chairman and nomination of other officers for the twelfth session of the Committee, and appointment of members of the Advisory Committee on Science and Technology for Development.

9. Provisional agenda and organization of work for the twelfth session of the Committee.

10. Adoption of the report of the Committee.

F. Adoption of the report

15. At its 114th meeting, on 3 May, the Committee adopted its draft report (A/CN.11/1991/L.3 and Adds.1-5) and authorized the Rapporteur to finalize it in consultation with other members of the Bureau.

IV. WORK OF THE COMMITTEE AT ITS ELEVENTH SESSION

A. Introductory and general statements

16. The Chairman of the eleventh session of the Intergovernmental Committee on Science and Technology for Development stated that the Committee was meeting at the beginning of the Fourth United Nations Development Decade. He recalled that the adoption of the Vienna Programme of Action on Science and Technology for Development by the General Assembly also coincided with the Third Development Decade and formed the basis of most of the proposals put forward for that decade. Since the expectations of the Vienna Programme of Action had not been met, it would be necessary to analyse the reasons for the failure of the practical measures that had been taken to accomplish the tasks of the Programme and to formulate new notions and hypotheses from a scientific point of view.

17. Knowledge as a result of expanding scientific complexity should be continuously integrated into thinking on global issues, and the operational value of such concepts as "environmentally sound technology" and "endogenous capacity-building" should be subjected to thorough scrutiny. Science should be involved in reconsidering organizational and institutional arrangements that would transcend the autonomy and sovereignty of nations. He suggested that the industrialized countries should see the situation in the developing world from a perception of enlightened self-interest rather than one of sympathy and compassion.

18. The Chairman stated that the problem of population growth could be the main focal point of science in the 1990s, thereby enabling improvements to be made in the quality and dignity of human life in third world countries.

19. He concluded that more emphasis should be placed on the so-called "soft" sciences, namely, human and social sciences in development, in order to assist in a reformulation of notions and goals for developing countries, and proposed that such aspects could constitute the substantive theme of the next session of the Committee.

20. The Director-General for Development and International Economic Cooperation stated that in 1989 the General Assembly adopted on the recommendation of the Committee its resolution 44/14, which reaffirmed the validity of the Vienna Programme of Action as well as its fundamental objectives and also took important decisions concerning multilateral cooperation for the strengthening of endogenous capacities. The Assembly, reflecting the concerns of the Committee, also declared its preoccupation concerning the implementation of the Vienna Programme, whose results had disappointed developing and industrialized countries alike.

21. The interest of Member States in the field of science and technology was reiterated by the General Assembly at its special session on international economic cooperation, as well as in the adoption of the strategy for the 1990s. As regards the least developing countries, the Paris Conference had recommended action to reinforce their scientific and technological capacities. Unfortunately, in spite of the efforts of the international community and some relative successes, the pessimistic conclusions of the end

of 1989 were still an actuality. The qualitative and quantitative gap in science and technology continued to grow between developed and the developing world. At the same time, the economic gap between the North and the South had become still wider.

22. While science alone could not be the solution to development, it would be in science, especially political and economic sciences, that one could find solutions to the problems of development, including viable conditions for the implantation of science and technology as agents in the transformation of the South.

23. He stated further that the substantial theme chosen by the Committee at its current session, the equitable access by developing countries to environmentally sound technologies, showed after analysis that the solution of global development problems would depend on science and technology and in that case on the transfer to the South on favourable conditions of new environmentally sound technologies.

24. Science and technology mutually reinforced each other owing to the fact that scientific research made use of technological advances such as informatics and robotics. Conversely, the breakthroughs issuing from scientific research, which constituted the basis of technology innovation, were very rapidly put into use by technological research and by industrialized production. The net result of such interaction was an unprecedented acceleration of progress in science and technology on the whole. That might explain how dramatically developing countries were lagging behind in science and technology.

25. The concept of science and technology capacities implied the development of human resources, especially through education. That question, which was addressed in the Committee's end of decade review in 1989, should be dealt with in more depth by it. In pursuing the request addressed to him by the General Assembly, he had submitted to the Committee a report on new developments and trends in the United Nations system. The report noted efforts between a creation of a generic and technology capacity that would serve to reinforce capacities in specific sectors, including health and food. The report also noted a consensus on the importance of strategic planning and technological prospective studies both in the Secretariat of the United Nations and in programmes of cooperation with Member States.

26. The Director-General also made reference to the report of the Secretary-General on the activities of the organizations in 1990 and referred to what he called the social control of the utilization of science and technology for military ends. He underlined the point made in the report of the Secretary-General that the necessary unrestricted access of developing countries to new technologies should not result further in a destabilizing qualitative arms race and that the international community should establish equitable safeguards in that respect that could be acceptable by everyone.

B. Substantive theme: ways and means of ensuring the participation of developing countries in international cooperation for research on and development of environmentally sound technologies, and the rapid and effective transfer of such technologies to the developing countries

(Agenda item 3)

27. The Officer-in-Charge of the Centre for Science and Technology for Development introduced the report of the Secretary-General on the ways and means of ensuring the participation of developing countries in international cooperation for research on and development of environmentally sound technologies, and the rapid and effective transfer of such technologies to the developing countries (A/CN.11/1991/2) and stated that science and technology, which had become more important than ever, were indispensable components of the response to the wide range of environmental challenges. The United Nations had a continuing role to play in mobilizing the potential of science and technology for development. It was not an easy task, and perhaps for that reason the Organization had often been criticized for the manner in which it had addressed the problem.

28. He emphasized that the transfer of environmentally sound technologies to developing countries on preferential terms and the building of capacities for the effective application of such technologies was vital for achieving sustainable development in those countries. It was necessary to identify creative mechanisms and operational methods to accelerate such transfer and enhance the capacities to manage environmentally sound technologies in developing countries, including financing.

29. He also introduced a background document entitled "Environmentally sound technology assessment (ESTA)".

30. The representative of Ghana, speaking on behalf of the Group of 77, stated that the world was in the last decade of a century that had seen the most technological development in history. One would have thought that the achievements in technological innovations and development that had taken place in the developed North would have been brought within easy reach of the developing countries. It was tragically ironic that the developing countries had not been able to benefit from that development. The result had been a widening gap between the developed and most of the developing countries. The Group of 77 attached enormous importance to the subject of science and technology for development and that was reflected in its national social and economic development planning.

31. In an era in which the issues of accessibility to and affordability of environmentally sound technologies had become very important globally, it was important to make a concerted effort to ease the burdens of developing countries in those areas in order to ensure human survival. He lamented the fact that serious efforts made by the Group of 77 within the United Nations and other international forums had not been rewarded by significant progress in creating conditions for a more rapid development of science and technology in developing countries. The classic concept of technology transfer, predicated on the use of multilateral agencies and bilateral donors, had not

been able to fulfil the task. The Group of 77, however, wished to emphasize that international support was still essential to the efforts of the developing countries to strengthen the processes of their scientific and technological development.

32. The Group of 77 reaffirmed the validity of the Vienna Programme of Action on Science and Technology for Development 6/ and the relevance of the three basic goals for the development of developing countries, namely, to strengthen the endogenous capacity of developing countries, restructure international science and technology relations and strengthen the role of the United Nations system. In addition, the Group of 77 would like to see international scientific and technological cooperation that inspired trust and confidence, full access to scientific and technological knowledge, unimpeded transfer of technology on terms that were non-exploitative, a harmonized United Nations policy on science and technology and the setting up of financial mechanisms to provide the necessary resources to ensure meaningful implementation of the Vienna Programme of Action. He reiterated the call made at the Special Ministerial Meeting of the Group of 77 in June 1989 for the need to continue to strengthen and expand the human resource base of developing countries. The Group of 77 appreciated the work of the Intergovernmental Committee, which it saw as an important forum for the growth and development of science and technology. He also called for special attention to be paid to the needs of the least developed countries.

33. A number of representatives commended the Intergovernmental Committee for its foresight in the selection of the substantive theme since it would serve as a significant contribution to the preparatory process of the 1992 United Nations Conference on Environment and Development. Two of the most important and delicate topics to be discussed during the Conference would be the transfer of environmentally sound technologies and financial resources to developing countries. The reports of the Secretary-General on those subjects were considered comprehensive and highly analytical by many representatives; they not only elaborated the various difficulties and problems confronting the developing countries in their efforts to participate in international cooperation on research and development of environmentally sound technologies and in the rapid and effective transfer of such technologies to developing countries but also envisaged some preliminary solutions. The reports, in conjunction with the background document on environmentally sound technology assessment, would serve as a significant contribution to the preparation of the 1992 United Nations Conference on Environment and Development. The representatives of two developing countries encouraged the Centre for Science and Technology for Development to continue its work in the area of the assessment of environmentally sound technologies as an important contribution to the implementation of the Vienna Programme of Action.

34. Many representatives endorsed the observations made in the report of the Secretary-General on the substantive theme that the global dimension of environmental and development challenge called for concerted action on a wide

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6/ See Report of the United Nations Conference on Science and Technology for Development, Vienna, 20-31 August 1979 (United Nations publication, Sales No. E.79.I.21 and corrigenda), chap. VII.

front. It required an increased solidarity among all nations and the political will of all countries in order to face the complex task that lay ahead for the community of States. There was no doubt that the key issue of the technological development of developing countries was central to the world community's endeavour to meet successfully the challenge of environmentally sound and sustainable development at national, regional and global levels. The representative of a developing country stressed the need for a clean environment as a guiding principle that should not be used to infringe on the sovereign rights of States or impose new conditions in aid and trade.

35. Many representatives from developing countries emphasized the need to look specifically at developing countries' environmental problems. Those concerns were inextricably linked to the larger question of global environmental impoverishment but had not received the kind of serious efforts that were needed to ensure the cooperation of developing countries in international attempts to achieve global sustainable development. The representative of a developing country recommended that global environmental questions should not overshadow the gravity of local environmental problems, such as desertification and drought. Both global and local environmental issues should be kept in mind when addressing the question of access and transfer of environmentally sound technologies. The representative of a developing country argued that the effects of environmental degradation had no boundaries and that it was the common responsibility of humanity to use all the knowledge and technologies available to halt the current process of environmental destruction. He stressed that in a matter of such urgency it would be immoral to withhold technologies capable of reversing current trends for either political, ideological or proprietary reasons.

36. Several representatives from developed and developing countries expressed the urgent need for international cooperation in support of the national priorities and plans of developing countries to strengthen their capacities to develop and effectively apply environmentally sound technologies. In that regard, the representatives emphasized that the building of endogenous capacity in developed countries was just as significant as making environmentally sound technologies available on the market.

37. The representative of an island developing country drew the attention of the Intergovernmental Committee to the specific situation of small island developing countries with regard to the need to build up a critical mass in science and technology to respond effectively to their national needs and international obligations. Attempting to build on a resource-poor base and lacking the established scientific and technological infrastructures, such as universities and research and development institutions that had been identified as essential prerequisites for endogenous capacity-building in science and technology, placed the small island developing countries at risk of exclusion from the so-called "age of information technology". A programme of action tailored specifically to the unique requirements of small island developing countries was needed that would combine an innovative approach focused on participatory, people-oriented, sustainable development targeted to making science and technology a dynamic and integral part of their development processes.

38. The representative of a developed country stated that effective technology transfer involved more than simply moving products and industrial

processes. As the documentation on the substantive theme pointed out, it required the transfer of knowledge needed to create and manage processes and products. In order to build up the necessary knowledge, appropriate conditions must exist in the receiving country. The transfer of technology had to be seen from a longer-term and wider perspective, where investments in capacity-building and human resource development were central elements, particularly with regard to the need to develop, adapt and apply technologies tailored to the specific conditions and requirements of developing countries. There must be sufficient means available to finance effective demand; there must be environmental policies in place and research and education systems capable of receiving, adapting and developing applications of new knowledge. He stated that while market mechanisms could provide significant technology transfers, they were inadequate in fully satisfying demand and equity objectives and might not be effective in some countries. Thus, the role of the public sector was essential.

39. The representative of a developing country saw an effective way to circumvent the difficulties faced by developing countries in gaining access to proprietary technologies through public financing of the costs of such transfer or through the establishment of financial mechanisms under public control. Owing to the lack of resources by developing countries, such mechanisms would necessarily be of international scope, either bilateral or multilateral. Those efforts should be complemented by market mechanisms.

40. Many representatives pointed out that one of the major obstacles to the transfer of environmentally sound technologies had been their high cost coupled with the financial weakness of developing countries. While there was no absolute scarcity of resources, some argued, developed countries had not shown the political will to redirect available resources to promote development and to preserve the environment in developing countries. In that context, the representative of a developing country stated that developed countries should transfer environmentally sound technologies to developing countries on concessional and favourable terms to compensate for the economic losses on the part of developing countries as a result of environmental protection measures that would need to be put in place. They encouraged the establishment of special funds with new and additional resources to finance the transfer of environmentally sound technologies. It was also suggested that funding arrangements established under the Montreal Protocol could serve as a guide for the establishment of a funding mechanism for that purpose.

41. Many representatives from developing and developed countries agreed that to facilitate technology transfer to developing countries, it was necessary to define mechanisms aimed at increasing investments of both the private and public sectors by improving access to markets, developing research and development activities, facilitating access to patents and building up endogenous capacity in the area of science and technology. Those mechanisms should combine different elements, such as internal policies, innovative forms of partnerships between enterprises of developing and developed countries, enhancement of the scientific and technological cooperation between Governments and a more effective role by international agencies and non-governmental organizations.

42. Proposals were also made with regard to environmental protection measures. The representative of a developed country proposed the creation of

disincentives in the case of the transfer of outdated and pollution-generating technologies. In that connection, he stated that consideration should be given to the disclosure practices of private enterprises with regard to environmental impact and risk assessment related to particular technologies.

43. The representative of a developed country supported the view expressed in the report of the Secretary-General that national patent systems significantly affected the transfer and application of environmentally sound technologies. He stressed the need, however, for providing appropriate protection for intellectual property rights and emphasized that real technology transfer occurred as the result of close entrepreneurial cooperation. His Government, he stated, had committed approximately $US 2.2 billion in bilateral and multilateral assistance in the field for the period 1989-1991. He also informed the Committee about the formation of the Keidanren Global Environment Charter, a federation of economic organizations in Japan. The Charter provided guidelines in the area of environmental protection to be applied by Japanese companies and their subsidiaries. The representative of a developing country expressed the need for a regime concerning the protection of intellectual property that would legitimize international diffusion of environmentally sound technologies. A number of representatives gave specific attention to the role of the private and public sectors, especially with regard to their responsibility and potential to take action to improve the transfer of technologies to developing countries. The representative of a developing country underlined the need to take steps to develop technologies in the public domain through subsidies by developed countries, differential pricing policies by commercial enterprises and by limiting the life of environmental patents while providing a time waiver to developing countries so that their obligations under relevant international agreements would come into effect only after the life of the patents.

44. Many representatives referred to the importance of having access to information on environmentally sound technologies and the capacity to make effective use of such information. In that context, they pointed out that the lack of updated information on available environmentally sound technologies clearly hampered the dissemination of those technologies which were readily available. Several representatives supported the need for establishing an international database that would provide information not only on environmentally sound technologies but also on the world's distribution of technologies that were environmentally damaging. The database should take into account the implications of intellectual property rights.

45. Several representatives stated that developing countries had been unable to participate in research and development projects on environmentally sound technologies because they had first to deal with priorities covering the basic needs of their citizens. Many representatives stressed the importance of promoting partnerships in research on and development of environmentally sound technologies between developed and developing countries that were geared to development rather than solely to market strategies. They fully endorsed the observations made in the report regarding that issue, particularly with the view that multilateral cooperation had the advantage of bringing weaker and poorer partners in contact with the international scientific and technological community.

46. Many representatives pointed to the important suggestions contained in the report regarding the establishment of a collaborative network of international research centres on environmentally sound technologies. Such a network should be based primarily on existing regional research, development and demonstration centres, which must be strengthened. Those regional centres should be linked to national institutions.

47. In the context of regional cooperation in research and development, the representative of a Latin American country informed the Intergovernmental Committee about an initiative known as the Bolivar programme, aimed at a regional strategy of technological innovation to foster the integration and industrial competitiveness of Latin American and Caribbean countries in an environmental context. Such a programme would promote scientific, technological and industrial cooperation among business enterprises and research centres of the region with the objective of increasing the productivity and competitiveness of industries and national economies.

48. The representative of the Netherlands, speaking on behalf of the European Community and its member States, thanked the Centre for Science and Technology for Development for its comprehensive report on the substantive theme. He emphasized the importance of the "think globally and act locally" approach, which had, so far, perhaps been more relevant for the developed part of the world, including Eastern Europe. Technology applications could have not only a minimum global adverse environmental effect but also even a beneficial effect on the global environment. Attention should also be given to promoting the use of technologies aimed at protecting the local environment.

49. Commenting further on the report of the Secretary-General, he noted that it disregarded any possibility of tapping internal financial resources. However, not all of the developing countries were facing such a situation, since a reordering of budget priorities in some of those countries could achieve improvements in their financial situations. The European Community and its member States fully subscribed to the need to mobilize additional financing support from the international community for that purpose.

50. He also stated that regulations on the export of environmentally damaging technologies must avoid a system of double standards, with different criteria used for the domestic application on the one side and the exportation of such technologies on the other. The responsibility of the international business community and recipient countries concerning such regulations had been emphasized by the World Industrial Conference on Environmental Management and by the Business Council for Sustainable Development. He raised doubts with regard to the usefulness of establishing yet another data bank, as had been proposed by representatives of other countries, given the existing databases operated by the United Nations Environment Programme (UNEP). He also raised the question of the extent to which international property rights could be considered a barrier to technology transfer, as stated in the report.

51. With regard to the substantive theme for the twelfth session of the Intergovernmental Committee in 1993, three proposals were made during the debate, namely, "Ways and means for implementing the decisions of the United Nations Conference on Environment and Development in the field of science and technology", "Science and technology for the integration and industrial competitiveness of the developing regions" and "Technology assessment in conversion of military technology for developmental purposes".

52. The representative of the United Nations Educational, Scientific and Cultural Organization (UNESCO) emphasized the importance of access to new knowledge and added that owners of new technologies often dictated the rules of the game. For science to be universal, the international community should propose solutions that would satisfy all countries. Additionally, he underlined the need to strengthen networking schemes in the regions and promote centres of excellence in South-South and North-South cooperation, to promote basic research in various ecologically related fields and to develop national higher education and training systems in science and technology.

53. The representative of the International Labour Organisation (ILO) noted that the understanding of the relationships between development and environment remained in a state of infancy; policy experiences were limited and the empirical evidence was being confined largely to the countries of the Organisation for Economic Cooperation and Development (OECD). He proposed that if the use of natural resources was to be sustained in the long run, preference should be given to those policy measures which relied on market incentives. He raised the question of the kind of policies needed to prevent adverse employment effects due to environmental degradation, such as involuntary migration through soil degradation and erosion, deforestation and desertification.

54. In his statement, the representative of the Economic Commission for Africa (ECA) referred to the serious social and economic problems facing the African region, which affected the incorporation of the issue of environmental protection into development policies. The major concern of the African countries at the moment was to find ways and means to survive using whatever technology they could lay their hands on and which they could afford. He stressed the need to strengthen the local infrastructure, including the research and development sector, in order to improve the possibilities for technology application and to avoid a "brain drain". He emphasized that research and development cooperation in the African region had to make use of existing mechanisms and institutions for such cooperation. He outlined basic features for the participation of African countries in international cooperation for research on and development of environmentally sound technologies and the effective transfer of such technologies to African countries.

55. The representative of the Economic and Social Commission for Asia and the Pacific (ESCAP) said that he supported the thrust of the views in the report of the Secretary-General. They served as a practical base for future development. In the ESCAP region, the biophysical environment continued to deteriorate while the political situation had improved. The population was increasing and the majority of the people continued to depend directly on the environment for their livelihood. Accordingly, the rapid depletion of the environment was a source of serious concern.

56. The economic growth of the region had exceeded that of any of the other developing regions of the world. A significant portion of that growth was due to rapid industrialization. That growth had produced a number of environmental problems, including a higher rate of air pollution and a reduced capacity to deal with it. If future generations were to enjoy a better quality of life, it was necessary to institute effective methods to conserve the environment and reverse the degradation that had already occurred while pursuing economic growth and development.

57. For many developing countries, particularly the least developed and island economies, appropriate domestic policy and institutional infrastructure, as well as skilled manpower relevant technologies and large financial resources were required to deal with both local and global environmental problems. All these facilities were woefully lacking in many developing countries. Access to environmental technologies was, therefore, limited or non-existent. Such countries needed to be provided, through some form of cooperation at regional, subregional and global levels, with adequate financial resources and information about what was available, at what cost and where, so as to build up national and regional capacities for promoting environmentally sound and sustainable development.

58. ESCAP has taken initial steps in the above direction by organizing at Bangkok in October 1990, in cooperation with the United Nations Development Programme (UNDP), UNEP, the Asian Development Bank and the Government of Thailand, a Ministerial-level Conference on Environment and Development incorporating simultaneously an exhibition on environmentally sound technologies, "CLEANTECH, 1990", and a media non-governmental symposium on communication for environment. The Conference adopted a 32-paragraph declaration on environmentally sound and sustainable development affirming the commitment of Asia-Pacific countries to adopt an integrated approach to environment and development. A regional strategy for environmentally sound and sustainable development was supported and ESCAP had prepared a comprehensive regional input to assist the preparation for the 1992 United Nations Conference on Environment and Development in Brazil.

59. The representative of the Union of International Technical Associations said his organization was a non-governmental body consisting of 26 international technical associations. During the past year, the Union had formed a joint executive committee with the World Federation of Engineering Organizations to consider eco-technological programmes for protecting the environment and mitigating the effects of natural hazards. They gave particular attention to enhancing the engineering contributions to the International Decade for Natural Disaster Reduction (1990s) (General Assembly resolution 44/236).

60. Partnerships in carrying out programmes highlighted in the report were valuable. The proposed network of international research centres could lead to a world-wide network of such centres, which might be known as the consultative group on international research on environmentally sound technologies. That idea should be given serious encouragement, as the engineering and technical communities could be valuable partners.

61. The representative of the International Association for Impact Assessment, a non-governmental organization, stressed the importance of applying the methodology of impact assessment, including technological forecasting and monitoring, backed by impact evaluation, in order to project not only the most probable but also the most desirable future. That was a "value-added" process, requiring the active participation of decision makers and the public alike. The Association had been founded in 1981 to bring together researchers, practitioners and users of technology, environmental impact, social impact and risk assessment and other specializations.

62. The representative of the Bangladesh Centre for Advanced Studies said that in his country the concepts of economy and ecology were complementary. Many of the ecological, resource and environmental disasters now besetting the world were the consequence of the so-called development stimulated by science and technology. A point had been reached where the sustainability of the planet itself was increasingly in doubt.

63. Sustainable development was so far the most used, even abused, term of the 1990s. Theories about sustainable development that had evolved under the auspices of the United Nations were very admirable, but as long as the most desperate problems of the developing countries were not addressed all promises were hollow. He himself came from a "sub-subsistence" country with a "stressed" ecology. He had recently been assigned to define an achievable and acceptable scenario for a world of radically changed climate for the year 2050 and he had concluded that without mass participation in programmes to avert environmental and economic disaster and a radical change in lifestyles, particularly in the developed countries, such a society could not be achieved.

64. For science and development to bring about transformation in developing countries there had to be a reordering of priorities and a readjustment of focus. In past centuries, there had been a net increase in the flow of wealth from South to North, whereas the flow of technology from North to South had been restricted. That restricted flow had been due in part to the South's incapacity to use relevant information. However, efforts must now be made to reverse that flow. There must be an unhindered flow of information and technology from North to South. Acceptance of its moral responsibility by the North was a prerequisite for such a flow.

65. In the world's poorest countries the environment and the economy were inseparable from survival. Scarce resources that had been harmoniously exploited for centuries were now under such pressures, from deforestation and overfishing, for example, as to be threatened with total depletion. Development to meet the needs of the few were denying the basic tools of survival to the many. The poorest countries had often depended on the most vulnerable systems. He was pleased that the Intergovernmental Committee had made their survival a priority question.

C. Financing science and technology for development

(Agenda item 4)

66. The Officer-in-Charge of the Centre for Science and Technology for Development introduced the agenda item and document A/CN.11/1991/3. He recalled the agreement reached at the Vienna Conference in 1979 on the establishment of a long-term, self-sustaining financing system and the failure of intergovernmental negotiations for nearly a decade to establish such a system. The decision of the Committee four years ago to transfer the fund for science and technology to UNDP was in the expectation that it might attract stronger donor support. As implicitly stated in General Assembly resolution 44/14, it no longer appeared possible that a separate and self-sustaining single multilateral fund would be established on a viable basis. It was in this context that in resolution 44/14 the Assembly had requested an examination of the possibility of organizing a coalition of resources. The

current situation was that in spite of the emergence of the concept of endogenous capacity-building as a major developmental objective, the sources of funding for science and technology in general and, in particular, for capacity-building were diffuse and fragmented, with the result that the international community was unable to impart momentum to this crucial process.

67. Clearly, there was a need for new ideas on how to finance the scientific and technological needs of developing countries, especially for endogenous capacity-building. The bulk of resources should continue to come from domestic sources, which required appropriate policy adjustments by developing countries, particularly by inducing the participation of the private sector through tax and other incentives. Bilateral resources constituted the bulk of national support for science and technology and those resources should be targeted more directly towards endogenous capacity-building. Multilateral resources, although relatively modest, were critical and catalytic and provided an important channel for obtaining access to modern technologies. Multilateral support for science and new technologies was also diffused and, given the nature of science and technology and plurality within and outside the United Nations system, it was neither possible nor desirable to continue efforts to consolidate all of these resources. An equal imperative was to provide a more organized, larger pool of funds to support endogenous capacity-building in developing countries.

68. Following the directions of the General Assembly in its resolution 44/14, with the assistance of the Advisory Committee on Science and Technology for Development, the Centre had formulated some preliminary ideas on ways and means of organizing the coalition of resources. These were contained in the report of the Secretary-General. The Centre was continuing its work in this respect in cooperation with other funding bodies such as the Swedish Agency for Research Cooperation with Developing Countries. Based on the decision to be taken by the Committee, the Centre would continue this work, consult with other bilateral and multilateral funding bodies and prepare a more elaborate and detailed blueprint. There were, however, encouraging signs that the donor community itself was more receptive to some of these ideas, as indicated in the recent report of OECD on an expert meeting on science and technology. The Intergovernmental Committee could provide the needed political impulse and substantive guidance in the furtherance of this process.

69. The representative of the United Nations Fund for Science and Technology for Development referred in his statement to the changes in the situation of the Fund since 1989, the priority areas of its work, the recent situation and future prospects. A major problem since the Vienna Conference had been the gap between harsh realities and lofty expectations. The Fund had been able to establish a close working relationship with the Centre and, by consolidating its activities with the revolving fund for natural resource exploration, it had been possible to save about 40 per cent of the administrative costs, bringing down the overhead charges to 11 per cent. The five priority areas chosen by the Fund had been science and technology policies, including management of technology; technological innovation and entrepreneurship; technological information; quality control; and new and renewable sources of energy. The Fund also acted as a focal point for energy in UNDP, which was funded by the Organization of Petroleum Exporting Countries (OPEC). All the core resources were contributed by developing countries, although three fourths of its resources came from non-core contributions, totalling

$8-$10 million per year. As for the future, there was clearly a need for explicit funding of science and technology activities, and the idea put forward in the report of the Secretary-General on a coalition of resources deserved to be supported and implemented.

70. Several representatives stated that the report of the Secretary-General on this topic was of a high quality, analytical and forward-looking. It explored possibilities and alternatives and provided a concrete and substantive basis for deliberation by the Committee. Adequate financing was the ultimate test to the commitment to science and technology. There existed now a certain opportunity to assemble a critical mass of resources for financing science and technology. The concept of endogenous capacity-building should also be included in the sectoral adjustment policies of the International Monetary Fund (IMF) and other bodies, since the current adjustment policies were proving to be harmful to the process of endogenous capacity-building in some developing countries. It was clear that the high expectations of the Vienna Conference on the possibility of creating a large, self-sustaining fund had not materialized and were not likely to materialize in the near future.

71. The conclusion of the report of the Secretary-General that no single source, bilateral or multilateral, could fill the existing void and that, given the reality of diminishing resources, only through a pooling of funds of like-minded donors could a critical mass of resources be mobilized was shared by several representatives. An organized coalition of resources was critical to the challenge of stimulating the development of endogenous science and technology capacities of developing countries. A representative of a developing country observed that the possibility of such a coalition performing the function of a revolving fund, which would purchase technologies, particularly in the public domain from developed countries, sell them to the developing countries, recoup the expenses and use them for future activities should be considered. There was a need for both a North-South cooperation as well as South-South cooperation and, in particular, regional cooperation. Venture capital funds were another means of financing science and technology. According to a recent OECD report, the aid given to developing countries in 1990 was in effect cut in half, constituting about 5 per cent of the military expenditures of those countries. Domestic efforts to finance science and technology, particularly endogenous capacity-building, were by themselves inadequate in the absence of strong external financial support.

72. The following further comments were made by several representatives of developing countries. Mobilizing adequate financial resources for science and technology was one of the international community's major challenges at the present time. Since the United Nations Fund had been unable to attract the critical mass of core resources, it was crucial that other promising avenues should be explored. The current financial constraints faced by many developing countries were greatly exacerbating the science and technology gap with the developed countries. It was imperative therefore to seek a more effective coalition of resources from the United Nations system and from the other multilateral, regional and bilateral sources. As observed in the report of the Secretary-General, in the pursuit of a new financing concept, it was important not to lose sight of the lessons of the past concerning the United Nations Fund for Science and Technology for Development. The principle of

universal support, especially encompassing all major donor countries was important, as also the need to promote the confidence of the donor community by more clearly defining the focus of the various programmes. The other pitfalls outlined in paragraph 50 of the report also needed to be borne in mind. The new modality of financing science and technology should focus on endogenous capacity-building based on commonly accepted and clearly defined criteria. Effective coordination between donor countries, as well as between the recipient institutions, should be ensured.

73. In view of the continuing debt crisis and the net transfer of resources from developing countries to developed countries, it was simply unrealistic to regard developing countries, particularly the least developed countries, as being responsible for the inability to mobilize domestic resources for the implementation of the important concept of endogenous capacity-building. For most of those countries, sustaining a subsistence-level standard of living was a daily struggle. The little that such countries could do towards endogenous capacity-building was itself a great sacrifice that could be boldly pursued only with a clear indication that such domestic resources would be supplemented by sufficient external assistance. While it was true that the involvement of the widest possible stakeholders could facilitate the implementation of science and technology policies, it was necessary to stress that unless those efforts were substantially supplemented by external resources, more frustrations were likely to be experienced by the developing countries. In Africa, an African Charter for Popular Participation in Development and Transformation had been established and endorsed by the General Assembly in resolution 45/178 C of 19 December 1990, and it had been hoped that, on issues concerning science and technology for development, the international community would provide the necessary assistance. In dealing with the activities of the United Nations Fund, it would have been more helpful if a measure of quantification had also been introduced. It would also be useful to be informed of the amount of resources expected to be spent on the projects listed in the annex to the report of the Secretary-General.

74. Representatives supported the new financing concept of coalition of resources. Although the United Nations system as a whole had not been successful in attracting the necessary resources of science and technology, the spirit of the Vienna Conference expressed in the concept of concrete programmes was mutually beneficial and would optimize scarce resources. Strict separation had often led to underutilization, waste and a flow of external resources in support of activities that were demonstrably not of the highest domestic priority. Provision of domestic resources was also indicative of the firm commitment on the part of recipient countries, which in turn could give a sense of encouragement to external donors that the development assistance was meaningful and target-oriented. In the proposed new arrangement for financing science and technology, the least developed countries should be treated differently and a nominal internal contribution from these countries, if any, should be sufficient. External donors should be less assertive on their own assistance criteria and more responsive to the prioritized projects of recipient countries. As proposed in the report of the Secretary-General, the World Bank should be urged to consider its support for the efforts of developing countries to enhance their endogenous capacity in science and technology as a core element of its policies. This should apply also to regional development banks. The representatives of developing countries on the governing boards of those banks should propose such a policy

shift, take the lead in demonstrating the high priority given to science and technology and affirm that they were prepared to make appropriate adjustments in the allocation of resources. Efforts of the United Nations Fund, in the face of financial constraints, to enhance science and technology capacity in developing countries were commendable. It was gratifying that the Centre and the Fund were working closely together to support endogenous capacity-building in science and technology, which was of crucial importance for sustainable long-term development of developing countries.

75. The representative of a developed country stated that although bilateral aid constituted a major part of external assistance and would continue to do so in the future, multilateral aid was unlikely to rise above the current levels. It was necessary to adopt a more realistic approach towards coordinating aid as a whole. In addition to regular consultations between donors and recipients, the proposal to establish an informal association of donors to mobilize the coalition of resources for endogenous capacity-building was worth pursuing. There was also a growing recognition in the donor community of the need for coordination of aid and a strategic shift towards capacity-building, as indicated in the report of a recent OECD meeting on science and technology.

D. Assessment of the impact of the activities of the United Nations system in promoting endogenous capacity-building in developing countries in the field of science and technology

(Agenda item 5)

76. The Officer-in-Charge of the Centre for Science and Technology for Development introduced the documents (A/CN.11/1991/4 and A/CN.11/1991/CRP.1) under this agenda item. He stated that the major task since the Vienna Conference in 1979 had been to codify the concept of endogenous capacity-building in science and technology, the centrepiece of the Vienna Programme of Action on Science and Technology for Development, and to operationalize it in the context of the specificity of individual countries so as to distinguish generic science and technology activities that were mostly subsumed under sectors such as agriculture and industry from those which could be deemed directly contributory to that complex process. The Advisory Committee on Science and Technology for Development, having dealt with this subject and having made important contributions to the definition and design of the concept, was continuing its work with a view to producing more specific operational criteria.

77. The Administrative Committee on Coordination Task Force on Science and Technology for Development had initiated, in selected developing countries, pilot programmes that were being implemented by the Centre. In addition to Jordan, Nepal, Thailand and the United Republic of Tanzania, in which the programmes were already under implementation, six more countries had been chosen for similar pilot programmes supported by a trust fund provided by the Government of Germany through the United Nations Fund for Science and Technology for Development. A comprehensive evaluation of those activities, to be undertaken in early 1993, would be followed by a workshop in which country representatives, the United Nations system and various experts would

participate. The Centre would then bring out a detailed "how-to" manual for the benefit of other developing countries. The Centre had adopted a two-pronged approach in preparing its contribution to the Intergovernmental Committee on Science and Technology for Development comprising the undertaking of impact assessments in the context of specific countries through inter-agency missions and the commencing of a more organized and broader process through the Advisory Committee. The summary of replies that, in line with considerations developed by the Advisory Committee, had been received from the different organizations of the United Nations system had been made available to the Intergovernmental Committee in the form of a conference room paper.

78. One representative said that his country was one of the few fortunate nations to be benefiting from the endogenous capacity projects. The programmes deserved strong support by the entire international community. The objectives of the International Development Strategy for the Fourth United Nations Development Decade would not be achieved in the field of science and technology for development in relation to modernizing and transforming the industrial and agricultural sectors if such current programmes did not culminate in implementable programmes.

79. He stressed that although the Centre's report had acknowledged some of the programmes' stated weaknesses, not all developing countries had been entrapped by those weaknesses. The report of the Secretary-General had addressed the issue of endogenous capacity-building, while the South Commission's report, The Challenge to the South, had addressed indigenous capacities. The report of the Secretary-General had stressed that endogenous capacity was neither the same as indigenous research capacity nor was it synonymous with infrastructure-building. Though conceptually complex, endogenous capacity-building was essential for a scientific and technological breakthrough in developing countries. Since the report had attributed the failure to implement the goals of the Vienna Programme to an absence of clarity in the endogenous capacity concept and in its implementation, the Intergovernmental Committee should analyse that assertion carefully.

80. In recent years transfer of technology from developed to developing countries had met with determined unwillingness from the developed countries. Since, as the report had noted, many developing countries were struggling to survive as pre-industrial communities, the need for external assistance to achieve genuine endogenous capacity could not be overemphasized. In that regard, he expressed appreciation to the mission of experts that had recently visited his country with the purpose of defining a programme of technical assistance in the field of building material production based on a strategy of technology transfer.

81. The representative of a developed country said that the situation with regard to the stock of knowledge might be improved through establishment of local subsidiaries of international corporations, imports, licensing, joint ventures, collaboration agreements and the hiring of experts. "Absorptive capability" referred to the application of such knowledge, which required creativity and innovation and might be promoted through the formulation of appropriate governmental policies. He supported the argument that developing countries must develop their absorptive capability, namely, the ability to choose, to apply and to adapt. That argument had been the central theme of the Vienna Programme.

82. He emphasized that developing countries must apply the general concept of endogenous capacity-building in the light of their specific needs within the field of science and technology, reflecting their domestic socio-economic, geopolitical and cultural status, as well as their stage of development. Endogenous capacity-building was thus a country-specific operation, that required strong initiative by the appropriate authorities in all countries wishing to launch such a process.

83. The representative stressed that the Centre must work to sensitize the bilateral and multilateral donor community to the importance of endogenous capacity-building by developing countries and he recommended that the Centre encourage the appropriate authorities in developing countries to identify and assess their technology needs and plan projects for endogenous capacity-building.

84. The representative of another developed country said that his delegation continued to attach major importance to endogenous capacity-building in developing countries. Those countries were still not in a position to backstop their evaluation and selection of modern technologies with an adequate number of experts. They were experiencing the same lack in the increasingly important area of assessment of the impact of new technologies on society, the economy and the environment. In view of the global threat to climate and to ecological resources, he said, growing importance should be given to the question of the environmental compatibility of new technologies. Only countries with an adequate capacity of their own in that area would be able, in the long term, to reconcile modern technological imperatives with the preservation of their natural resources as a basis for sustained economic growth and for meeting their citizens' basic requirements. He agreed with the Secretary-General that endogenous capacity-building in science and technology was the critical component of sustainable development. That subject should be given broader consideration in the course of further work by the Centre and in view of the forthcoming United Nations Conference on Environment and Development in 1992.

85. The representative of a developed country agreed with the report of the Secretary-General, especially on the need for close coordination of activities within the United Nations system. He commended the efforts of the Advisory Committee, which attached great importance to endogenous capacity-building, and supported the conclusion that the impact of the United Nations system in promoting endogenous capacity-building should be global in character.

86. As interrelated global problems led to new requirements the harmonization of targets and objectives was crucial. Changes in the political climate would undoubtedly have an impact on scientific and technological development. In the light of the importance of multilateral cooperation for endogenous capacity-building in the developing countries, the need to look for new approaches in preparing methodologies and criteria for assessment was urgent. He commended the work done by UNESCO in that field and hoped the Centre would further contribute to the work being done. He also hoped that cooperation among the members of the Administrative Committee on Coordination Task Force would further improve.

87. The representative of ILO drew conclusions on endogenous capacity-building based on the work of his organization. With respect to

human resource development, he said, endogenous capacity-building involved three distinct stages, namely, the nurturing of individual skills, the assembling of the persons embodying such skills into effective organizations and the infusion of zeal and purpose into those skills. He pointed out that the process of endogenous capacity-building varied according to the size of the country as well as from sector to sector. Small countries faced intractable difficulties in expanding technological capacity and in devising and implementing effective technology policies. As for differences among economic sectors, endogenous capacity-building in the secondary sector could be task-specific while endogenous capacity-building in the tertiary sector could not be measured by the mastery of a technology. Indeed, an ILO secondary-sector case-study had concluded that in addition to macroeconomic policy instruments, both governmental and non-governmental institutions played a crucial role in the accumulation of technological capacity over time.

88. He stated that endogenous capacity-building might pose a policy dilemma since existing technical capability constituted a scarce resource that could be deployed either to generate current output and employment or to create greater technological capability. Such a policy dilemma might be translated into a choice between immediate smaller increases in output and employment and much larger future gains in both areas.

89. The representative of a developing country said that since the adoption of the Vienna Programme of Action the role and value of science and technology had acquired particular importance, and were now admitted as a critical determinant of any sound development plan. The United Nations Centre for Science and Technology for Development was in a unique position to play a leading role in the rapid development of resources to promote global progress. He reviewed activities in the field of science and technology and said his country, like other developing countries, was in dire need of access to technologies developed in industrialized countries. Also, there was urgent need for an agreement to accelerate the transfer of technologies to developing countries.

90. He said the objective of his country was to create strategic planning capabilities to promote and direct long-term industrial and technological development. For those efforts to succeed, however, the sustained and continued support of the Centre and the United Nations Fund for Science and Technology for Development was needed. Referring to the institutional arrangements provided by the Vienna Programme of Action, he said he strongly believed that the Centre should be allowed to acquire the much-needed critical mass that would enable it to respond better to the mandate given to it by the General Assembly. Further, the Centre and other United Nations agencies should enhance their efforts to secure more active involvement of the private sector in efforts to strengthen the scientific and technological base of developing countries.

E. Activities of the United Nations system in science and technology for development, including those of the Centre for Science and Technology for Development and the Advisory Committee on Science and Technology for Development

(Agenda item 6)

91. In his introduction, the Officer-in-Charge of the Centre for Science and Technology for Development stated that the item dealt with the Committee's original mandate given by the General Assembly to assist it in the task of monitoring the activities and programmes of the United Nations system in science and technology for development. The ultimate goal of that task was to improve the quality of the response of the system as a whole to the needs of Member States in science and technology for development. As the Committee was aware through more than a decade of its work on that issue, the task of inter-agency coordination was complicated by the pervasiveness of science and technology activities throughout the system and the complex set of interrelations that existed among the intergovernmental organs involved, both within the United Nations and the specialized agencies. However, he believed that the report of the Director-General on new developments and trends in the programmes and activities of the United Nations system in science and technology (A/CN.11/1991/5) reflected a recent evolution in the system as a whole towards an improved recognition of the substantive goals of the Vienna Programme of Action.

92. The Officer-in-Charge also introduced the report of the Secretary-General on the activities of the Centre (A/CN.11/1991/9).

93. The Chairman of the Administrative Committee on Coordination Task Force on Science and Technology for Development expressed his view that the substantive bodies of the Administrative Committee might not always have lived up to their expectations. The agencies had often attended coordinating meetings without the wish to be coordinated. However, the Task Force had tried to identify common interests and had voluntarily developed innovative coordination through inter-agency missions. There was a need for additional efforts to develop a stable basis for coordination so as to make the Task Force more effective and better integrated in its United Nations system activities.

94. At its recent session, the Task Force had considered the topic of biotechnology and had prepared a bibliography on the subject. In the view of the Chairman, biotechnology was not an exclusive activity of any one specialized agency. Nevertheless, the combined activities in that area of most of the agencies could assume proper significance.

95. The Chairman of the Advisory Committee on Science and Technology for Development introduced and summarized the report of his Committee (A/CN.11/1991/6). He informed the Intergovernmental Committee that the Advisory Committee had chosen as the theme of its next session the role of science and technology in small developing countries, and that it welcomed suggestions from members of the Intergovernmental Committee for specific policy issues that might be addressed by that theme.

96. Many of the delegations expressed their appreciation for the report of the Director-General. The representative of one developing country noted that his country was impressed with the information but would have liked to see specific recommendations on the two key issues of coordination and harmonization. He was interested to note a thematic commonality in the United Nations system in fields such as biotechnology, micro-electronics and new materials, and in endogenous capacity-building. He expressed his desire for more comprehensive and detailed listing of those developments.

97. Several representatives reiterated their desire to see the Centre assume a stronger role in coordination, as foreseen in General Assembly resolution 34/218. The representative of one developing country pointed out that the Centre was the institutional instrument designed to affirm the central role of the United Nations in the promotion of science and technology for development.

98. Appreciation was also expressed for the Administrative Committee on Coordination Task Force on Science and Technology for Development. One representative from a developed country stated that he would like to see the role of the Task Force further strengthened.

99. Many representatives expressed their strong support for the endogenous capacity-building pilot projects and some expressed their desire to have similar projects implemented in their countries in addition to those already under way.

100. The representative of a developed country stated that his delegation was pleased to see that activities of the Centre were focused on the central theme of the Vienna Programme of Action, namely, endogenous capacity-building of developing countries. He proposed that, in order to improve the pilot projects, the respective countries should engage external consultants sufficiently familiar with their socio-economic situations and with the area of science and technology and make better use of mobilizing technical expertise available in the United Nations system.

101. A representative of a developed country emphasized the importance of endogenous capacity-building and pointed out that the theme on transfer and management of environmentally sound technologies was closely related to it. He therefore welcomed the organization by the Centre of a series of conferences on policy issues and options related to an assessment of clean-coal technology. He also noted that endogenous capacity-building was an important prerequisite for access to information and data on environmentally sound technologies and suggested that the possibilities of regional cooperation in that field be strongly considered.

102. A representative of a developing country said that the endogenous capacity-building project being carried out in his country, in cooperation with the Centre, was of great significance to the country.

103. Another representative of a developing country expressed his appreciation for the activities of the Centre and their increasingly practical ability to respond effectively to the increased needs of developing countries in science and technology. He singled out particularly the seminar on desertification, held in China in 1990, at which emphasis was placed on endogenous capacity-building to combat desertification and develop arid and semi-arid areas.

104. The representative of a developing country pointed out that the report of the Director-General contained suggestions regarding the promotion of entrepreneurship in developing countries in small and medium-sized industries, enterprises to develop environmentally sound technologies and assistance to facilitate establishment of consultancy businesses for technological management. He expressed his desire to receive additional information on what was envisaged and what practical measures were feasible to realize those objectives. The representative of a developed country also stressed the need to examine closely the problem of creating market mechanisms for technological innovations. In particular he suggested that attention be given to the legislative measures that could affect innovation.

105. Several representatives expressed their continued support for the Advanced Technology Assessment System and emphasized the need to approach it from both a methodological and a capacity-building point of view. The representative of a developed country suggested that increasing attention be given to developing the endogenous capacity of technology assessment in developing countries and not just to satisfying curiosity. Several representatives from both developed and developing countries supported the idea of a 1992 meeting on the role of technological monitoring, assessment and forecasting. One representative of a developing country proposed that the suggestion be examined in depth.

106. A representative of a developed country stressed the importance of being able to choose, possess, apply and adapt environmentally sound technologies, including adaptation to the social, economic, technological and environmental conditions of developing countries. A necessary prerequisite was investments in the development of human resources through education and enhanced research capabilities.

107. Many of the delegations expressed their appreciation for the report of the Advisory Committee and suggested that the recommendations in the report could provide a useful input for the United Nations Conference on Environment and Development.

108. The representative of a developed country noted that the report provided useful guidance and proposals on the future orientation of science and technology for development. Another representative of a developed country supported the Advisory Committee's proposal for setting up international technical parks, which could be the concrete embodiment of cooperation.

109. Several representatives expressed their appreciation for the report on the methodologies and asked the Committee to consider ways in which its recommendations might be implemented.

110. The representative of a developing country proposed that the next theme of the Intergovernmental Committee should take advantage of newly developed mathematical modelling, especially non-linear modelling, in order to examine and compare the results of similar and different approaches to applying science and technology to development. The comparison would be applicable to sectors and sub-sectors both within a single country and between different countries.

111. The representative of the United Nations University provided information

on its research programmes, which included not only basic scientific research but also the application of science and technology in support of the development process. In the context of the University's Second Medium-Term Perspective (1990-1995), the research agenda would focus on advances in science and technology for development. Major aspects of the related work were central to the work of the Institute for New Technologies at Maastricht, the Netherlands, the International Institute for Software Technology at Macau, the Programme of Biotechnology in Latin America and the Caribbean at Caracas, and the programmes coordinated by the University Centre in Tokyo. He noted that the University had developed close collaborative ties with the Centre in several areas. One of those was a joint project to set up a machine-readable register of research in the United Nations system, initially in the area of science and technology and subsequently in other areas.

112. The representative of ILO highlighted some of its experiences in monitoring and forecasting the social impact of newly emerging technologies, especially on employment, productivity and the working environment. The areas covered by the organization's technology assessment exercise included biotechnology; micro-electronics-related technologies and robotization.

113. The representative of ESCAP summarized the organization's activities in relation to endogenous capacity-building in science and technology for development, which had somehow not been reflected in the report of the Director-General.

114. The representative of the Department of International Economic and Social Affairs stated that the World Economic Survey, prepared by the Department, provided an overall account of economic trends, including those which affected sustainable development. The Department attached great importance to the role of entrepreneurship and had thus assisted in the promotion of the private sector in general and more specifically in the development of entrepreneurship in, for instance, small and medium-sized enterprises.

115. The representative of the Third World Academy of Sciences called attention to the Academy's achievements in providing due recognition to scientific excellence in the third world as well as research grants and fellowships to promising young scientists from the South. He also referred to the proposal being made by the Academy's Chairman to develop a network of research and training centres of excellence in science and technology and in environmental sciences, which was being welcomed by many countries. In his view, the need for coordination being referred to in the Director-General's report between the United Nations system and the Third World Academy of Sciences and its network of scientific institutions should be extended to new non-governmental organizations created at the regional level.

116. The representative of the European Council of Social Research on Latin America underlined the importance of social sciences in the field of science and technology for development. His organization's preoccupation was the potential repercussion of a restructuring of the relationship beween Europe and Latin America. The Council also proposed a special think tank within the Council with possible support of the United Nations system, to focus on the sociology of science and technology, and in particular to analyse the social conditions for the implantation of science and technology in developing countries.

F. Programme questions

(Agenda item 7)

117. The Officer-in-Charge of the Centre for Science and Technology for Development drew the attention of the Committee to document A/CN.11/1991/CRP.3 covering this agenda item. He said that the Centre's programme activities for the biennium 1992-1993 fell under four subprogrammes, namely, endogenous capacity-building and resource mobilization; the Advanced Technology Alert System; coordination and harmonization of activities of the United Nations system on science and technology; and information services.

118. He indicated that those activities would continue to focus on two major areas. The first area would respond to issues of international concern through various technology assessment exercises with special emphasis on preparation of the substantive theme for the deliberations of the Intergovernmental Committee and the General Assembly. The second area of activities was to provide orientation and assistance to selected developing countries in establishing science and technology policies and promoting policy dialogues on science and technology in the development process. The activities related to coordination and harmonization as well as information and communication were of a supportive nature for the implementation of the above two major areas of activities.

119. The representative of ECA stated that the programme activities should include specific roles for the regional commissions.

V. ACTION TAKEN BY THE COMMITTEE

A. Draft resolution A/CN.11/1991/L.4

120. At the 113th meeting, on 1 May, the representative of Ghana (on behalf of the States Members of the United Nations that are members of the Group of 77) introduced a draft resolution, entitled "Science and technology for development in the 1990s" (A/CN.11/1991/L.4).

121. At the 114th meeting, the Secretary orally revised the draft resolution. Following further amendments proposed by the representatives of Malawi, Ghana (on behalf of the States Members of the United Nations that are members of the Group of 77) and Brazil, the Committee adopted the draft resolution as orally revised and amended (see para. 3).

B. Election of the Chairman and nomination of other officers for the twelfth session of the Committee, and appointment of a member of the Advisory Committee on Science and Technology for Development

122. For its consideration of the item, the Committee had before it two notes by the Secretariat on the procedure for the appointment of members of the Advisory Committee on Science and Technology for Development (A/CN.11/1991/8) and the interim appointment of a member of the Advisory Committee on Science and Technology for Development (A/CN.11/1991/10).

123. At its 114th meeting, on 3 May, the Committee decided that since the cycle of nomination of members of the Advisory Committee on Science and Technology for Development did not coincide with the biennial cycle of sessions of the Committee, it would convene an extraordinary session in 1992 to appoint 14 members for a three-year term (1993-1995) to fill vacancies that would occur on 31 December 1992. It further decided that, in order to ensure that, in the future, these appointments coincided with the regular sessions of the Intergovernmental Committee on Science and Technology for Development, the terms of office of members of the Advisory Committee should be changed from three to four years, starting with those whose terms started on 1 January 1994. They would from then on serve only one four-year term.

124. At the same meeting, the Committee decided to appoint Mr. Vladimir A. Labunov (Union of Soviet Socialist Republics) as a member of the Advisory Committee for the remainder of the term of Mr. Alexandre P. Vladislavlev, who had resigned from the Advisory Committee.

125. At the same meeting, the Committee agreed to continue to work on an informal basis with the bureau of the eleventh session to follow the substantive preparations for the twelfth session, as proposed by several representatives; this would also give the Committee time to look into the nominations of the members of the bureau for the twelfth session. This arrangement would not prejudge the composition of the new bureau.

C. Draft provisional agenda for the twelfth session of the Committee

126. At the 114th meeting, on 3 May, the Secretary orally revised the draft provisional agenda for the twelfth session of the Committee, as contained in document A/CN.11/1991/L.3/Add.6.

127. At the same meeting, the representatives of Egypt and the Netherlands proposed further amendments to the provisional agenda. The Committee then adopted the draft provisional agenda for the twelfth session contained in document A/CN.11/1991/L.3/Add.6 as orally revised and amended. The draft provisional agenda reads as follows:

1. Election of officers.

2. Adoption of the agenda and organizational matters.

3. Substantive theme:

   The contribution of technologies, including new and emerging ones, for the industrialization of developing countries and for the strengthening of regional and global integration processes, including proposals on ways and means of transferring such technologies and for their incorporation in the productive sector of those countries.

   Documentation

   Report of the Secretary-General on the contribution of technologies, including new and emerging onces, for the industrialization of developing countries and for the strengthening of regional and global integration processes.

4. Activities of the United Nations system:

   (a) Coordination and cooperation in science and technology within the United Nations system;

   Documentation

   Report of the Secretary-General on ways and means of improving the quality of coordination and cooperation in science and technology for development.

   (b) Assessment of the impact of activities of the United Nations system related to the process of creating and strengthening endogenous capacity-building in science and technology in developing countries;

   Documentation

   Report of the Secretary-General on the enhancement of the impact of the activities of the United Nations system on the creation and strengthening of endogenous capacities in science and technology.

(c) Activities of the Centre for Science and Technology for Development.

Documentation

Report of the Secretary-General on the activities of the Centre for Science and Technology for Development.

5. Activities of the Advisory Committee on Science and Technology for Development.

Documentation

Report of the Advisory Committee on Science and Technology for Development.

6. Transfer and application of environmentally sound energy technologies.

Documentation

Report of the Secretary-General on the utilization and marketing of energy technologies, focusing the policy issues and options for the transfer and application of environmentally sound technologies.

7. Financing science and technology for development, including the activities of the United Nations Fund for Science and Technology for Development.

Documentation

Report of the Secretary-General on proposals for the organization of a coalition of resources to finance science and technology for development.

8. Programme questions.

9. Election of the Chairman and nomination of other officers for the thirteenth session of the Committee, and appointment of members of the Advisory Committee on Science and Technology for Development.

10. Provisional agenda and organization of work for the thirteenth session of the Committee.

VI. CONCLUDING REMARKS

128. The Officer-in-Charge of the Centre for Science and Technology for Development said that the resolution adopted by the Committee reflected views and suggestions of the representatives of different countries, as well as intergovernmental and non-governmental organizations.

129. The Centre was prepared, with the support of the Director-General for Development and International Economic Cooperation, and in close cooperation with the Task Force on Science and Technology for Development of the Administrative Committee on Coordination, to enhance its efforts in responding to the requests of the resolution. The future report would not be an academic exercise, rather it would be based on available reports, empirical data and case-studies. Special attention should be devoted to the situation in the least developed countries, as scientific communities in those countries deserved solidarity. Ways and means should be worked out to involve representatives of those countries in the future deliberations of the Committee. He said it was important that the Committee function as a forum involving individuals, representing scientific communities, as well as legislative bodies. The international dimension should be considered in order to accommodate that purpose.

130. The Chairman of the Committee, in his concluding remarks, said the Committee had analysed the world situation in the field of science and technology, as well as how to make its role more efficient. The resolution adopted by the Committee would provide the guidelines for its work during the next session in 1993.

131. Referring to the eleventh session, he said a spirit of cooperation had guided the Committee's activities, but there was still deep concern and even apprehension over the difficult tasks that lay ahead. The world was in serious disequilibrium and still knew too little of the remedies to be applied to ensure stability. He wished to reiterate his previously expressed personal belief that in the 1990s science would provide the knowledge and the new vistas that would help to modify the world.

132. He expressed the hope that in future all people would be equal and that in the third millennium the world would no longer be divided in terms of developed and developing countries.

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